United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Tennessee Agricultural Experiment Station and United States Department of Agriculture, Forest Service

Soil Survey of Polk County, Tennessee

Detailed maps are available in two formats. Digital copies (SSURGO) that can be used in a Geographic Information System (GIS) can be accessed at http://www.ftw.nrcs.usda.gov/ssur_data.html. (The State Soil Survey Area ID is TN139.) Paper copies of the maps can be obtained from the Natural Resources Conservation Service, District Conservationist, 6042 Highway 411, P.O. Box 130, Benton, TN 37307 (telephone number 423-338-4555).

How to Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

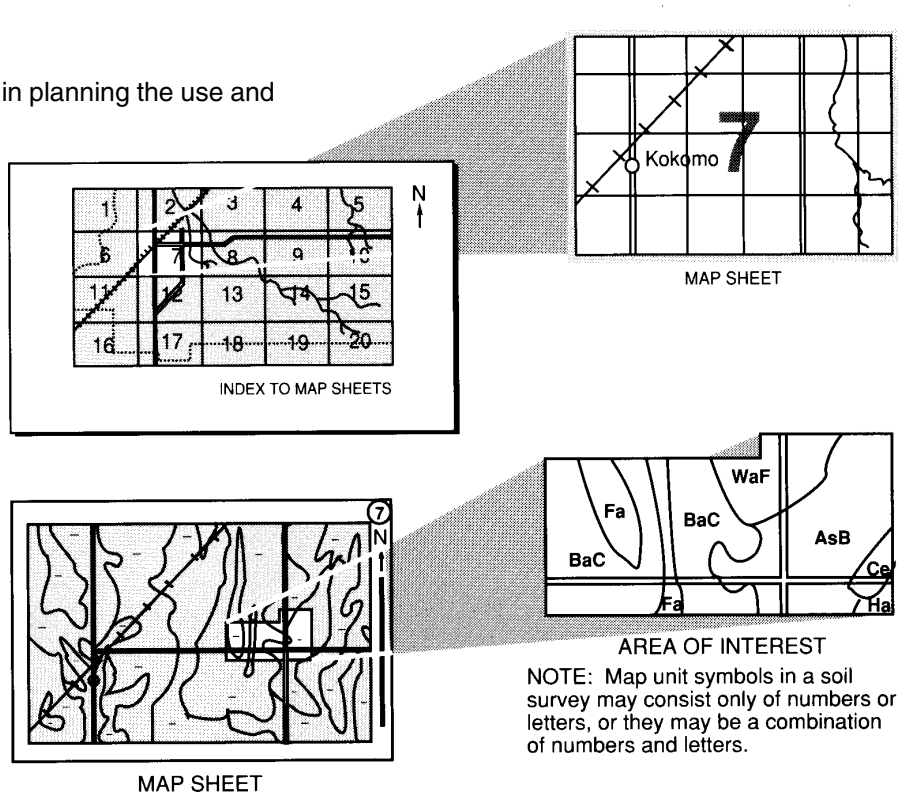
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1984. Soil names and descriptions were approved in 1996. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1984. This survey was made cooperatively by the Natural Resources Conservation Service; the Tennessee Agricultural Experiment Station; and the United States Department of Agriculture, Forest Service. The survey is part of the technical assistance furnished to the Polk County Soil Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: A view of Parksville Lake and the rugged mountain terrain of the Southern Blue Ridge Mountains from Sugarloaf Overlook.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is http://www.nrcs.usda.gov (click on "Technical Resources").

Contents

Issued 2001

Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

James W. Ford
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Polk County, Tennessee

By Darwin L. Newton and William C. Moffitt

Fieldwork by William C. Moffitt, Hershel D. Dollar, and Eddie C. McCroskey

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
the Tennessee Agricultural Experiment Station and the United States Department of Agriculture, Forest Service

Polk County is located in the extreme southeastern corner of Tennessee (fig. 1). It is bordered on the east by Cherokee County, North Carolina; on the south by Murray and Fannin Counties, Georgia; on the west by Bradley County, Tennessee; and on the north by McMinn and Monroe Counties, Tennessee.

Polk County has a total area of 282,900 acres, or about 442 square miles. Benton, Copper Hill, and Ducktown are the major towns in the county. According to census data, the population of the county was 13,602 in 1980.

The economy of the area is based mainly on forestry and mining activities and their related industries. Farming and tourism related to recreation are also important to the economy.

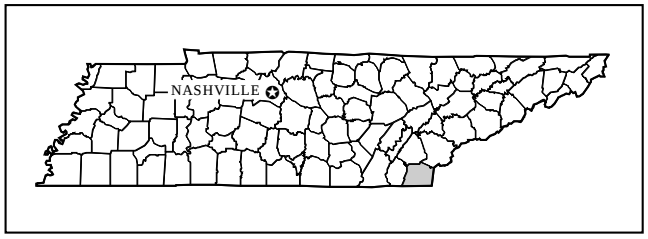


Figure 1.—Location of Polk County in Tennessee.

General Nature of the County

This section gives general information about the county. It describes settlement and history; natural resources; farming; transportation; physiography, drainage, and geology; and climate.

Settlement and History

Polk County was named in honor of James K. Polk, who served as Governor of Tennessee and President of the United States. It was formed by a legislative act on November 28, 1939, from parts of McMinn and Bradley Counties. The county seat, Benton, was named in honor of U.S. Senator Thomas H. Benton. That part of Polk County formed from McMinn County was acquired from the Cherokee Indians by the Treaty of 1819. The remaining acreage in the county was acquired by treaty with the Cherokee Indians in 1835.

The area from which Polk County was established was the home of many Indian tribes. At least three tribes have made their homes near the Ocoee River, not far from Benton. These tribes were the Early Woodland, 2,000 years ago; the Yuchi, 500 years ago; and the Cherokee, in the 16th and 17th centuries.

Natural Resources

Soils, water, minerals, and forestland are important natural resources in Polk County.

There is an abundant supply of fresh water in the county. Streams that flow the year round are common. Water is impounded behind three dams on the Ocoee River, and hydroelectric energy is produced on the Hiwassee and Ocoee Rivers. These rivers provide some of the best fishing, rafting, and floating in the State.

Forest products currently provide almost half of the total sales of the agricultural industry in the county. About 60 percent of the forestland in Polk County is in

Cherokee National Forest. This area is scenic and has high potential for timber production and recreational use.

Mineral production is centered in the extreme southeastern part of the county, which is called the Copper Basin. The mining and processing of sulfide ores yield copper, zinc, and silver. Copper ore was discovered in 1843, and mining began around 1847. Mining has continued on an intermittent basis since then. Copper smelting and the production of sulfuric acid are the current products of this operation.

Farming

The first European settlers in the county raised crops mainly to feed livestock and support their own existence. Currently, marketing of these products brings in a large portion of income for the farmers in the county.

Farming is concentrated mostly in the western part of the county. Dairy operations, beef cattle, swine, and poultry are the main enterprises.

Corn, soybeans, and wheat are the main crops. A few farmers grow tobacco. Hay is grown on most of the beef and dairy farms. Applying fertilizer, lime, herbicides, and pesticides according to the needs of crops is common.

Transportation

Polk County is dissected by two major highways—U.S Highway 411, which runs north and south through the western part of the county, and U.S. Highway 64, which runs east and west through the south-central part of the county. State Highways 68 and 30 are also important routes for trade, transportation, and tourism.

There are few roads that service the central portion of the county where Cherokee National Forest is located. Many of these roads are unpaved, narrow, and winding.

A railroad line runs through western Polk County. Spur lines extend service to the mining operations in Copper Hill.

Physiography, Drainage, and Geology

B.A. Hartman, geologist, Natural Resources Conservation Service, helped prepare this section.

The topography in Polk County varies greatly. Big Frog Mountain, in the south-central portion of the county, is 4,224 feet above sea level. Benton, the county seat, is 748 feet above sea level.

The county is traversed from east to west by the Hiwassee River. The Ocoee River enters the county at Copper Hill and intersects with the Hiwassee River about 2½ miles northwest of Benton. The Conasauga River crosses a portion of the southern part of the county. It is the only river in the State that reaches the Gulf of Mexico via Mobile Bay.

Polk County contains a more varied base of geologic formations than most counties in the State of Tennessee. From a standpoint of geologic time, rock formations in the county range from the Late Proterozoic Era to the Upper Ordovician Period, about 800 to 435 million years ago (Rogers 1953).

In the Late Paleozoic Era (250 million years ago), the rocks of east Tennessee underwent a period of intense deformation called the Alleghany orogeny. Orogeny literally means “the process of formation of mountains.” During this time, the east coast of what is now North America collided with the west coast of Africa, which resulted in the basic structures of the Blue Ridge and the Ridge and Valley provinces. As a result of the Alleghany orogeny, there are six major thrust faults trending from the northeast to southwest in the county.

The geology of Polk County can be subdivided into three groups for discussion—the Ridge and Valley, the Copper Basin, and the Blue Ridge (USDA 1981).

In the Blue Ridge, the rocks have been subjected to Barrovian-type metamorphism that grades from west to east (increasing metamorphism) from chlorite to staurolite. Rock types common in the Blue Ridge are slate, mica schist, phyllite, quartzite, and metasedimentary rocks (USGS 1993).

The Copper Basin is a unique area that is rich in massive sulfide deposits of copper, iron, sulfur, and zinc. The host rocks for the deposits are in the Copperhill Formation, which is composed of metagraywackes, metagraywacke conglomerates, and metapelites. The ore minerals in order of abundance are pyrrholite, pyrite, chalcopyrite, sphalerite, magnetite, and trace amounts of silver and gold (USGS 1993).

The Ridge and Valley consists of rocks of the Lower Cambrian Period to the Upper Ordovician Period. The rocks have undergone folding and faulting due to the Alleghany orogeny and, as a result, sometimes occur in repeated sequences. The rock types in the Ridge and Valley are dolomite, sandstone, siltstone, shale, limestone, and chert (Rogers 1953).

Climate

In Polk County in winter, valleys are very cool with occasional cold and warm spells and the upper slopes and mountaintops are generally cold. In summer, the

valleys are very warm and frequently hot and the mountains, which are warm during the day, become cool at night. Precipitation is heavy and evenly distributed throughout the year. Summer precipitation falls mainly during thunderstorms. In winter, the precipitation in valleys is mainly rain with occasional periods of snow and in the mountains it is mainly snow, although rains are frequent. The snow cover does not last long, except at the highest elevations.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Copperhill, Tennessee, in the period 1951 to 1984. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 39 degrees F and the average daily minimum temperature is 27 degrees. The lowest temperature on record, which occurred on January 24, 1963, is -8 degrees. In summer, the average temperature is 74 degrees and the average daily maximum temperature is 87 degrees. The highest recorded temperature, which occurred on July 30, 1952, is 103 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 59 inches. Of this, 29 inches, or nearly 50 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 25 inches. The heaviest 1-day rainfall during the period of record was 5.24 inches on March 29, 1951. Thunderstorms occur on about 56 days each year, and most occur in summer. At any time of the year, heavy rains from prolonged storms can occasionally occur throughout the survey area and can cause severe flooding in valleys.

The average seasonal snowfall is about 4 inches. The greatest snow depth at any one time during the period of record was 6 inches. On the average, 3 days of the year have at least 1 inch of snow on the ground.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 65 percent of the time possible in summer and 45 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 8 miles per hour, in spring.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically.

Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research (Soil Survey Staff 1996).

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Nearly level to very steep soils that are moderately deep or very deep and are moderately well drained to somewhat excessively drained; in the Ridge and Valley

This group consists of moderately deep, well drained soils that formed in shale residuum; very deep, moderately well drained soils that formed in alluvium on flood plains; very deep, well drained soils that formed in old alluvial deposits or in colluvium or residuum derived from limestone; moderately deep, somewhat excessively drained soils that formed in material weathered from fine grained sandstone, siltstone, and shale; and very deep, well drained soils that formed in colluvium or alluvium derived from metasedimentary rocks. The underlying bedrock is dominantly of Cambrian or Ordovician age.

The three map units in this group make up about 23 percent of the survey area. They differ in kinds of soils, the landscape position, and the type of underlying bedrock.

Most areas of the nearly level to moderately steep soils are used for pasture, hay, or cultivated crops. Some areas are planted to loblolly pine. Mixed hardwoods and pine plantations are dominant on the steep and very steep side slopes and narrow ridgetops.

1. Apison-Armuchee-Hamblen

Nearly level to very steep, well drained or moderately well drained, moderately deep or very deep soils that have a clayey or loamy subsoil; formed in acid shale residuum and in mixed alluvium

Setting

Physiography: Upland ridges and side slopes and the adjacent flood plains
Location in the survey area: Mostly the western edge along the Bradley County line and north into McMinn County
Slope range: 0 to 50 percent
Major land use: Pasture, hay, cultivated crops, or woodland
Extent of unit: 4 percent of the survey area

Composition

Apison soils: 39 percent
Armuchee soils: 32 percent
Hamblen soils: 11 percent
Similar soils: 9 percent
Contrasting soils: 9 percent

Minor Soils

Similar soils:
- Leadvale and Sequatchie soils on flood plains, on low stream terraces, and near drainageways
- Severely eroded areas of Apison and Armuchee soils

Contrasting soils:
- Intermingled areas of very deep, well drained Minvale and Waynesboro soils

Properties and Qualities of the Apison Soils

Slope range: 5 to 25 percent
Drainage class: Well drained
Depth to bedrock: 20 to 40 inches
Position on the landscape: Sloping to steep ridges and side slopes

Typical profile:
Surface layer—
0 to 6 inches; brown, very friable silt loam
Subsoil—
6 to 20 inches; brownish yellow, friable silt loam
20 to 30 inches; brownish yellow, friable channery silt loam
Bedrock—
30 to 61 inches; pale brown, soft shale

Properties and Qualities of the Armuchee Soils

Slope range: 5 to 50 percent
Drainage class: Well drained
Depth to bedrock: 20 to 40 inches
Position on the landscape: Sloping to very steep ridgetops and side slopes
Typical profile:
Surface layer—
0 to 4 inches; dark grayish brown, very friable channery silt loam
Subsoil—
4 to 7 inches; yellowish brown, friable channery silty clay loam
7 to 13 inches; strong brown, firm channery silty clay
Substratum—
13 to 21 inches; strong brown, firm very channery silty clay
Bedrock—
21 to 25 inches; soft, thin-bedded shale

Properties and Qualities of the Hamblen Soils

Slope range: 0 to 2 percent
Drainage class: Moderately well drained
Depth to bedrock: More than 60 inches
Position on the landscape: Nearly level flood plains
Typical profile:
Surface layer—
0 to 9 inches; dark brown, friable silt loam
Subsoil—
9 to 17 inches; dark brown, friable silt loam
17 to 28 inches; dark yellowish brown, friable clay loam
28 to 46 inches; yellowish brown, friable clay loam
Substratum—
46 to 60 inches; mottled brown, yellowish brown, and light red, friable clay loam

Map Unit Suitability

Cropland

Most of the nearly level to moderately steep soils are suited to cultivated crops if proper erosion-control and other conservation measures are applied. Areas of the Hamblen soils are suited to cultivated crops, but flooding may damage some crops in winter and early spring. The depth to bedrock limits the available water capacity and the root zone of the Apison and Armuchee soils. Steep and very steep areas of these soils are generally unsuited to cropland.

Pasture and Hayland

This map unit is suited to pasture and hay. Haying and properly maintaining pasture are more difficult in the moderately steep to very steep areas.

Woodland

Most areas of this map unit are well suited to woodland. An increased rate of erosion and difficulty in operating equipment are limitations on moderately steep to very steep slopes. Special planning of roads and erosion-control measures may be required in these areas. Plant competition from undesirable species can be a problem when establishing a new forest crop on any of the soils in the map unit.

Wildlife Habitat

The potential for openland wildlife habitat is fair in areas of the Armuchee soils and good in areas of the Apison and Hamblen soils. The potential for woodland wildlife habitat is good in this map unit. The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

Urban Uses

Apison and Armuchee soils are suited to some urban uses. The moderate depth to soft bedrock is a limitation affecting some uses. In many areas land shaping or grading is needed to help overcome the slope. Designing dwellings so that they conform to the existing slope reduces the need for land shaping. Areas of the Hamblen soils are unsuited to urban uses because of flooding and wetness.

2. Waynesboro-Minvale-Collegedale

Gently sloping to steep, well drained, very deep soils that have a clayey or loamy subsoil; formed in old alluvium, in colluvium, or in limestone or dolomite residuum

Setting

Physiography: Upland ridges and side slopes
Location in the survey area: Western portion; along the Ocoee and Hiwassee Rivers and in a southward band along Lowery Branch, Fry Branch, and Conasauga Creek
Slope range: 2 to 25 percent
Major land use: Pasture, hay, or row crops (fig. 2)
Extent of unit: 15 percent of the survey area

Figure 2.—Row crops and pasture on Waynesboro and Minvale soils in an area of the Waynesboro-Minvale-Collegedale general soil map unit. Collegedale soils are in the steeper, wooded areas.

Composition

Waynesboro soils: 36 percent
Minvale soils: 9 percent
Collegedale soils: 8 percent
Similar soils: 16 percent
Contrasting components: 31 percent

Minor Components

Similar soils:
- Intermingled areas of Decatur soils

Contrasting components:
- The moderately deep Apison, Armuchee, and Needmore soils in landscape positions similar to those of the major soils
- The moderately deep Talbott soils and areas of Rock outcrop on adjacent uplands
- Emory, Hamblen, Sequatchie, and Toccoa soils on adjacent flood plains and low stream terraces

Properties and Qualities of the Waynesboro Soils

Slope range: 2 to 25 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Position on the landscape: Gently sloping to steep upland stream terraces
Typical profile:
Surface layer—
0 to 7 inches; brown, very friable loam
Subsoil—
7 to 11 inches; red, friable clay loam
11 to 29 inches; dark red, friable clay
29 to 72 inches; dark red, firm clay

Properties and Qualities of the Minvale Soils

Slope range: 5 to 25 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches

Position on the landscape: Sloping to steep side slopes and footslopes
Typical profile:
Surface layer—
0 to 3 inches; dark grayish brown, very friable gravelly silt loam
Subsurface layer—
3 to 13 inches; light yellowish brown, friable gravelly silt loam
Subsoil—
13 to 21 inches; yellowish brown, friable gravelly silty clay loam
21 to 28 inches; strong brown, firm gravelly silty clay loam
28 to 39 inches; mottled yellowish red, strong brown, and yellowish brown, firm gravelly clay
39 to 68 inches; mottled yellowish red, strong brown, yellowish brown, and pale brown, firm very gravelly clay

Properties and Qualities of the Collegedale Soils

Slope range: 5 to 25 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Position on the landscape: Sloping to steep ridgetops and side slopes
Typical profile:
Surface layer—
0 to 6 inches; yellowish brown, friable silt loam
Subsoil—
6 to 17 inches; yellowish red, firm clay
17 to 26 inches; strong brown, firm clay
26 to 45 inches; yellowish red, firm clay
45 to 53 inches; mottled yellowish red, yellowish brown, strong brown, and white, firm silty clay
53 to 65 inches; yellowish red, firm clay

Map Unit Suitability

Cropland

Most of the gently sloping to moderately steep soils are suited to cultivated crops if proper erosion-control and other conservation measures are applied. Steep areas of these soils are generally unsuited to cropland.

Pasture and Hayland

This map unit is suited to pasture and hay. Haying and properly maintaining pasture are more difficult in steep areas.

Woodland

Most areas of this map unit are well suited to woodland. An increased rate of erosion and difficulty in operating equipment are limitations on moderately steep to very steep slopes. Plant competition from undesirable species can be a problem when establishing a new forest crop on any of the soils in the map unit.

Wildlife Habitat

The potential for openland wildlife habitat is good. The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

Urban Uses

This map unit is suited to urban uses. The clayey subsoil of the Waynesboro and Collegedale soils, the moderate or moderately slow permeability, and the steepness of slope are limitations affecting some urban uses. In some areas land shaping or grading is needed to help overcome the slope. Designing dwellings so that they conform to the existing slope reduces the need for land shaping.

3. Wallen-Needmore-Keener

Gently sloping to very steep, well drained or somewhat excessively drained, moderately deep or very deep soils that have a loamy or clayey subsoil; formed in material weathered from fine grained sandstone, siltstone, and shale; in material weathered from calcareous shale; or in colluvium derived from metasedimentary rocks

Setting

Physiography: Dissected ridges and side slopes and large colluvial or alluvial fans and footslopes
Location in the survey area: In the southwestern part
Slope range: 3 to 65 percent
Major land use: Woodland, hay, or pasture
Extent of unit: 4 percent of the survey area

Composition

Wallen soils: 37 percent
Needmore soils: 30 percent
Keener soils: 17 percent
Similar soils: 1 percent
Contrasting components: 15 percent

Minor Components

Similar soils:
- Intermingled areas of Lostcove soils

Contrasting components:
- Hamblen soils on adjacent flood plains
- Sequatchie and Toccoa soils on flood plains along major streams
- Small areas of Cataska soils and Rock outcrop

Properties and Qualities of the Wallen Soils

Slope range: 15 to 65 percent
Drainage class: Somewhat excessively drained
Depth to bedrock: 20 to 40 inches
Position on the landscape: Moderately steep to very steep ridgetops and side slopes
Typical profile:
Surface layer—
0 to 4 inches; brown, very friable channery sandy loam
Subsurface layer—
4 to 8 inches; light yellowish brown, very friable very channery fine sandy loam
Subsoil—
8 to 22 inches; light yellowish brown, very friable very channery fine sandy loam
22 to 30 inches; brownish yellow, very friable very channery sandy loam
Bedrock—
30 inches; hard sandstone

Properties and Qualities of the Needmore Soils

Slope range: 5 to 25 percent
Drainage class: Well drained
Depth to bedrock: 20 to 40 inches
Position on the landscape: Sloping and moderately steep ridges and side slopes
Typical profile:
Surface layer—
0 to 4 inches; brown, very friable silt loam
Subsurface layer—
4 to 7 inches; yellowish brown, friable silt loam
Subsoil—
7 to 16 inches; yellowish brown, friable silty clay
16 to 22 inches; strong brown, firm clay
Substratum—
22 to 29 inches; mottled yellowish brown and grayish brown, firm very channery silty clay
Bedrock—
29 to 34 inches; soft shale bedrock

Properties and Qualities of the Keener Soils

Slope range: 3 to 65 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Position on the landscape: Gently sloping to very steep side slopes, footslopes, and alluvial or colluvial fans and footslopes
Typical profile:
Surface layer—
0 to 4 inches; very dark grayish brown, very friable loam
Subsurface layer—
4 to 9 inches; yellowish brown, very friable loam
Subsoil—
9 to 17 inches; yellowish brown, friable loam
17 to 27 inches; yellowish brown, friable clay loam
27 to 40 inches; strong brown, friable clay loam
40 to 51 inches; yellowish brown, friable loam
Substratum—
51 to 65 inches; yellowish red, very friable loam

Map Unit Suitability

Cropland

Some of the sloping and moderately steep soils are suited to cultivated crops if proper erosion-control and other conservation measures are applied. Steepness of slope is a limitation in areas of the Wallen soils and in all steep and very steep areas. The moderate depth to bedrock limits the available water capacity of the Wallen and Needmore soils. Steep and very steep areas of these soils are generally unsuited to cropland.

Pasture and Hayland

Gently sloping and sloping soils in this map unit are suited to pasture and hay. Haying and properly maintaining pasture are more difficult in moderately steep to very steep areas.

Woodland

Most areas of this map unit are suited to woodland. An increased rate of erosion and difficulty in operating equipment are limitations on moderately steep to very steep slopes. Special planning of roads and erosion-control measures may be required in these areas. Plant competition from undesirable species can be a problem when establishing a new forest crop on any of the soils in the map unit.

Wildlife Habitat

The potential for woodland wildlife habitat is poor in areas of the Wallen soils and good in areas of the Needmore and Keener soils. The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

Urban Uses

This map unit is suited to some urban uses. The moderate depth to bedrock in areas of the Wallen and Needmore soils and the steepness of slope are the major limitations. In many areas land shaping or grading will help to overcome the slope. Designing dwellings so that they conform to the existing slope reduces the need for land shaping.

Gullied land and gently sloping to very steep soils that are shallow to very deep and are well drained or excessively drained; in the Blue Ridge and in the Copper Basin

This group consists of areas of Gullied land and areas of well drained or excessively drained soils on upland ridges, side slopes, and colluvial or alluvial fans and footslopes. The soils have a loamy surface layer and a loamy or clayey subsoil that contains varying amounts of pebbles, channers, or stones. They formed in residuum, colluvium, or alluvium derived from igneous and metamorphic rocks and from tilted and fractured metasedimentary rocks. The underlying bedrock is dominantly of Precambrian or Cambrian age.

The five map units in this group make up about 77 percent of the survey area. They differ in kinds of soils and miscellaneous areas, the landscape position, and the type of underlying bedrock.

Mixed hardwoods are dominant on the soils in this group. Some areas are planted to pines. Some of the gently sloping to moderately steep soils are used for pasture, hay, or cultivated crops. In some areas, special treatment has been applied and vegetation has been reestablished during reclamation.

The steepness of slope is the main limitation in areas of the moderately steep to very steep soils. The depth to bedrock is a major limitation in areas of map units 4, 5, 6, and 7. Gullied land is a major limitation in areas of map unit 8.

4. Lostcove-Keener-Cataska-Unicoi

Gently sloping to very steep, well drained or excessively drained, very deep or shallow soils that have a loamy subsoil; formed in colluvium, alluvium, or residuum derived from metasedimentary rocks

Setting

Physiography: Ridgetops, side slopes, and footslopes (fig. 3)
Location in the survey area: In the north-central portion; in the Bean Mountain and Starr Mountain areas
Slope range: 3 to 90 percent
Major land use: Woodland
Extent of unit: 9 percent of the survey area

Composition

Lostcove soils: 21 percent
Keener soils: 20 percent
Cataska soils: 17 percent
Unicoi soils: 13 percent
Similar soils: 16 percent
Contrasting components: 13 percent

Minor Components

Similar soils:
- Moderately deep McCamy soils on adjacent ridges
- Intermingled areas of soils that have a rubbly or bouldery surface layer

Contrasting components:
- Rock outcrop intermingled with areas of the Cataska and Unicoi soils
- Hamblen, Sequatchie, and Toccoa soils on flood plains and low stream terraces

Properties and Qualities of the Lostcove Soils

Slope range: 3 to 65 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Position on the landscape: Gently sloping to very steep side slopes, benches, and alluvial or colluvial fans and footslopes
Typical profile:
Surface layer—
0 to 5 inches; yellowish brown, very friable gravelly loam
Subsoil—
5 to 19 inches; yellowish brown, friable very cobbly clay loam
19 to 50 inches; yellowish brown, friable very cobbly clay loam
50 to 76 inches; yellowish brown, friable very cobbly clay

Properties and Qualities of the Keener Soils

Slope range: 3 to 65 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Position on the landscape: Gently sloping to very steep footslopes, side slopes, benches, and alluvial or colluvial fans
Typical profile:
Surface layer—
0 to 1 inch; very dark grayish brown, friable cobbly loam
Subsurface layer—
1 to 13 inches; brown and yellowish brown, friable cobbly loam
Subsoil—
13 to 37 inches; strong brown, friable cobbly clay loam
37 to 56 inches; strong brown, friable very cobbly clay loam
56 to 64 inches; strong brown, friable cobbly sandy loam

Figure 3.—Very steep, highly dissected mountains of the Southern Blue Ridge Province in an area of the Lostcove-Keener-Cataska-Unicoi general soil map unit.

Substratum—
64 to 70 inches; strong brown, friable very cobbly sandy loam

Properties and Qualities of the Cataska Soils

Slope range: 35 to 90 percent
Drainage class: Well drained
Depth to bedrock: 10 to 20 inches
Position on the landscape: Very steep side slopes and convex ridgetops
Typical profile:
Surface layer—
0 to 1 inch; very dark grayish brown, very friable channery silt loam

Subsurface layer—
1 to 5 inches; brown, very friable channery silt loam
Subsoil—
5 to 15 inches; strong brown, friable very channery silt loam
Bedrock—
15 to 24 inches; soft, thin-bedded phyllite
24 inches; hard, fractured phyllite

Properties and Qualities of the Unicoi Soils

Slope range: 15 to 65 percent
Drainage class: Excessively drained
Depth to bedrock: 7 to 20 inches
Position on the landscape: Moderately steep to very steep ridgetops and side slopes
Typical profile:
Surface layer—
0 to 3 inches; very dark grayish brown, very friable gravelly loam
Subsoil—
3 to 9 inches; dark yellowish brown, very friable very cobbly loam
9 to 17 inches; yellowish brown, very friable very cobbly fine sandy loam
Bedrock—
17 inches; hard arkosic sandstone

Map Unit Suitability

Cropland

The gently sloping and sloping areas of the Keener soils are suited to cultivated crops. The other soils in this map unit are unsuited to cultivated crops. Proper erosion-control and other conservation measures are needed. The steepness of slope and the shallow depth to bedrock are major limitations in areas of the Cataska and Unicoi soils.

Pasture and Hayland

The gently sloping to moderately steep areas of the Keener soils are suited to pasture and hay. Haying and properly maintaining pasture are more difficult in moderately steep to very steep areas, in areas that include Rock outcrop, and in areas that have stones on the surface.

Woodland

Most areas of this map unit are suited to woodland. An increased rate of erosion and difficulty in operating equipment are limitations on moderately steep to very steep slopes. Use of equipment in areas of the Lostcove soils is limited because of the stones on the surface. The windthrow hazard and a very low available water capacity are limitations in areas of the Cataska and Unicoi soils. Plant competition from undesirable species can be a problem when establishing a new forest crop.

Wildlife Habitat

The potential for woodland wildlife habitat is good in areas of the Keener and Lostcove soils and very poor in areas of the Cataska and Unicoi soils. The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

Urban Uses

This map unit is poorly suited to urban uses. The steepness of slope, the stones on the surface, and the depth to bedrock are the main limitations. Designing dwellings so that they conform to the existing slope reduces the need for land shaping.

5. Junaluska-Citico-Tusquitee

Sloping to very steep, well drained, moderately deep to very deep soils that have a loamy subsoil; formed in residuum or colluvium derived from metasedimentary rocks

Setting

Physiography: Ridge crests, side slopes, footslopes, and coves
Location in the survey area: Central portion of the county
Slope range: 5 to 65 percent
Major land use: Woodland
Extent of unit: 45 percent of the survey area

Composition

Junaluska soils: 56 percent
Citico soils: 9 percent
Tusquitee soils: 8 percent
Similar soils: 15 percent
Contrasting soils: 12 percent

Minor Soils

Similar soils:
• Scattered areas of Brasstown, Brevard, and Ditney soils
Contrasting soils:
• Sequatchie soils on low stream terraces and flood plains

Properties and Qualities of the Junaluska Soils

Slope range: 5 to 65 percent
Drainage class: Well drained
Depth to bedrock: 20 to 40 inches
Position on the landscape: Sloping to very steep ridgetops and side slopes

Typical profile:
Surface layer—
0 to 2 inches; brown, very friable fine sandy loam
Subsurface layer—
2 to 11 inches; strong brown, very friable fine sandy loam
Subsoil—
11 to 21 inches; yellowish red, friable sandy clay loam
Substratum—
21 to 26 inches; yellowish red and red layers of soft rock and sandy clay loam soil material
Bedrock—
26 to 31 inches; multicolored, weathered and fractured, soft metasandstone

Properties and Qualities of the Citico Soils

Slope range: 15 to 65 percent
Drainage class: Well drained
Depth to bedrock: 40 to 60 inches
Position on the landscape: Moderately steep to very steep lower side slopes and footslopes
Typical profile:
Surface layer—
0 to 4 inches; very dark grayish brown, very friable channery silt loam
Subsurface layer—
4 to 12 inches; dark yellowish brown, friable channery silt loam
Subsoil—
12 to 31 inches; dark yellowish brown, friable very channery silt loam
Substratum—
31 to 45 inches; yellowish brown, friable very flaggy silt loam
Bedrock—
45 inches; hard phyllite

Properties and Qualities of the Tusquitee Soils

Slope range: 20 to 65 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Position on the landscape: Steep and very steep side slopes, footslopes, and coves
Typical profile:
Surface layer—
0 to 4 inches; very dark grayish brown, very friable loam
4 to 8 inches; dark brown, friable loam
Subsoil—
8 to 26 inches; dark yellowish brown, friable loam
26 to 42 inches; yellowish brown, friable gravelly loam
42 to 60 inches; dark yellowish brown, friable gravelly loam

Map Unit Suitability

Cropland

The soils in this map unit are generally unsuited to cropland. The steepness of slope is the major limitation. The moderate depth to bedrock is an additional limitation in areas of the Junaluska soils.

Pasture and Hayland

The soils in this map unit are generally unsuited to pasture and hay. The steepness of slope is a major limitation. Haying and properly maintaining pasture are more difficult in the steeper areas.

Woodland

Most areas of this map unit are suited to woodland. The hazard of erosion and difficulty in operating equipment are management concerns. Special planning of roads and erosion-control measures may be required in these areas. Plant competition from undesirable species can be a problem when establishing a new forest.

Wildlife Habitat

The potential for woodland wildlife habitat is fair in areas of the Junaluska soils and good in areas of the Citico and Tusquitee soils. The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

Urban Uses

The soils in this map unit are generally unsuited to urban development. The steepness of slope is the major limitation.

6. Ditney-Jeffrey-Tusquitee

Moderately steep to very steep, well drained, moderately deep or very deep soils that have a loamy subsoil; formed in residuum and colluvium derived from metasedimentary rocks at the higher elevations

Setting

Physiography: Dissected ridges, side slopes, and colluvial footslopes and coves
Location in the survey area: Big Frog and Little Frog Mountains
Slope range: 12 to 65 percent
Major land use: Woodland
Extent of unit: 7 percent of the survey area

Composition

Ditney soils: 32 percent
Jeffrey soils: 28 percent
Tusquitee soils: 22 percent
Similar soils: 16 percent
Contrasting components: 2 percent

Minor Components

Similar soils:
- Very deep Keener and Lostcove soils that formed in colluvium
- Evard soils at the lower elevations

Contrasting components:
- Intermingled areas of Unicoi soils
- Suches soils on flood plains
- Isolated areas of Rock outcrop

Properties and Qualities of the Ditney Soils

Slope range: 12 to 65 percent
Drainage class: Well drained
Depth to bedrock: 20 to 40 inches
Position on the landscape: Moderately steep to very steep ridgetops and side slopes
Typical profile:
Surface layer—
0 to 3 inches; dark yellowish brown, very friable loam
Subsurface layer—
3 to 7 inches; yellowish brown, very friable loam
Subsoil—
7 to 15 inches; yellowish brown, friable loam
15 to 25 inches; strong brown, friable cobbly loam
25 to 35 inches; brown, friable cobbly loam
Bedrock—
35 inches; hard arkosic sandstone

Properties and Qualities of the Jeffrey Soils

Slope range: 12 to 65 percent
Drainage class: Well drained
Depth to bedrock: 20 to 40 inches
Position on the landscape: Moderately steep to very steep ridges and side slopes
Typical profile:
Surface layer—
0 to 8 inches; very dark brown, very friable channery loam
8 to 11 inches; dark brown, very friable channery loam
Subsoil—
11 to 22 inches; yellowish brown, friable cobbly loam
Substratum—
22 to 28 inches; yellowish brown, friable very cobbly loam
Bedrock—
28 inches; hard arkosic sandstone

Properties and Qualities of the Tusquitee Soils

Slope range: 20 to 65 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Position on the landscape: Steep and very steep side slopes, footslopes, and coves
Typical profile:
Surface layer—
0 to 4 inches; very dark grayish brown, very friable loam
4 to 8 inches; dark brown, friable loam
Subsoil—
8 to 26 inches; dark yellowish brown, friable loam
26 to 42 inches; yellowish brown, friable gravelly loam
42 to 60 inches; dark yellowish brown, friable gravelly loam

Map Unit Suitability

Cropland

The soils in this map unit are generally unsuited to cropland. The steepness of slope is a major limitation. The moderate depth to bedrock is an additional limitation in areas of the Ditney and Jeffrey soils.

Pasture and Hayland

This map unit is poorly suited or unsuited to pasture and hay. The steepness of slope is a major limitation. Haying and properly maintaining pasture are more difficult in the steeper areas.

Woodland

Ditney and Jeffrey soils are suited to woodland, and Tusquitee soils are well suited. The hazard of erosion and difficulty in operating equipment are management concerns. Special planning of roads and erosion-control measures may be required in these areas. Plant competition from undesirable species can be a problem when establishing a new forest crop on any of the soils in the map unit.

Wildlife Habitat

The potential of woodland wildlife habitat is good. The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

Urban Uses

The soils in this map unit are generally unsuited to urban development. The steepness of slope is a major limitation. The moderate depth to bedrock is an

additional limitation in areas of the Ditney and Jeffrey soils.

7. Evard-Hayesville-Junaluska

Sloping to very steep, well drained, moderately deep or very deep soils that have a loamy subsoil; formed in residuum derived from igneous, metamorphic, and metasedimentary rocks

Setting

Physiography: Dissected ridges and side slopes
Location in the survey area: In the eastern part of the county and along the Tennessee-North Carolina State line
Slope range: 5 to 65 percent
Major land use: Woodland
Extent of unit: 10 percent of the survey area

Composition

Evard soils: 47 percent
Hayesville soils: 32 percent
Junaluska soils: 6 percent
Similar soils: 9 percent
Contrasting components: 6 percent

Minor Components

Similar soils:
• Tate soils on the lower side slopes and on footslopes
Contrasting components:
• Arkaqua and Suches soils and Udifluvents on flood plains
• Gullied land intermingled with areas of the Evard and Hayesville soils
• Tsali soils

Properties and Qualities of the Evard Soils

Slope range: 5 to 30 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Position on the landscape: Sloping to steep ridge crests and side slopes
Typical profile:
Surface layer—
0 to 5 inches; dark brown, very friable loam
Subsoil—
5 to 22 inches; yellowish red, friable clay loam
22 to 32 inches; reddish brown, very friable loam
Substratum—
32 to 60 inches; reddish brown, very friable fine sandy loam

Properties and Qualities of the Hayesville Soils

Slope range: 5 to 30 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Position on the landscape: Sloping to steep ridges and side slopes
Typical profile:
Surface layer—
0 to 2 inches; brown, very friable loam
Subsurface layer—
2 to 5 inches; brown, friable loam
Subsoil—
5 to 9 inches; yellowish red, friable clay loam
9 to 30 inches; red, firm clay
30 to 36 inches; red, firm clay loam
36 to 60 inches; red, friable loam

Properties and Qualities of the Junaluska Soils

Slope range: 5 to 65 percent
Drainage class: Well drained
Depth to bedrock: 20 to 40 inches
Position on the landscape: Sloping to very steep ridgetops and side slopes
Typical profile:
Surface layer—
0 to 2 inches; brown, very friable fine sandy loam
Subsurface layer—
2 to 11 inches; strong brown, very friable fine sandy loam
Subsoil—
11 to 21 inches; yellowish red, friable sandy clay loam
Substratum—
21 to 26 inches; yellowish red and red layers of soft rock and sandy clay loam soil material
Bedrock—
26 to 31 inches; multicolored, weathered and fractured, soft metasandstone

Map Unit Suitability

Cropland

Some of the sloping and moderately steep areas of Evard and Hayesville soils are suited to cropland if proper erosion-control and other conservation measures are applied. In places the Gullied land is intermingled with areas of the Evard and Hayesville soils. Special site preparation and extensive erosion-control measures may be required if these areas are used as cropland. The steepness of slope and the moderate depth to bedrock are major limitations in areas of the Junaluska soils.

Pasture and Hayland

Some of the sloping and moderately steep areas of the Evard and Hayesville soils are suited to pasture and hayland (fig. 4). In places the Gullied land is intermingled with areas of the Evard and Hayesville

Figure 4.—An area of the Evard-Hayesville-Junaluska general soil map unit. The Evard and Hayesville soils are well suited to pasture and hay in some areas.

soils. These areas may require special site preparation before they are used for pasture or hay. The steepness of slope is a major limitation in areas of the Junaluska soils. Haying and properly maintaining pasture are more difficult in the steeper areas.

Woodland

Most soils in this map unit are suited to woodland. The hazard of erosion and difficulty in operating equipment are management concerns. Special planning of roads and erosion-control measures may be required in these areas. Plant competition from undesirable species can be a problem when establishing a new forest crop. The windthrow hazard is an additional concern in areas of the Junaluska soils.

Wildlife Habitat

The potential for woodland wildlife habitat is good in areas of the Evard and Hayesville soils and fair in areas of the Junaluska soils. The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

Urban Uses

Some of the sloping and moderately steep soils in this map unit are suited to urban development. In many areas land shaping or grading will help to overcome the slope. Designing dwellings so that they conform to the existing slope reduces the need for land shaping. The moderate depth to bedrock is a limitation in areas of the Junaluska soils.

8. Gullied Land-Evard-Hayesville

Sloping to very steep areas of truncated soils and areas of U-shaped or V-shaped gullies intermingled with sloping to steep, well drained, very deep soils that have a loamy subsoil; formed in material weathered from igneous and metamorphic rocks

Setting

Physiography: Dissected ridges and side slopes
Location in the survey area: In the Copper Basin
Slope range: 5 to 35 percent
Major land use: Woodland, mining, or idle land
Extent of unit: 6 percent of the survey area

Composition

Gullied land: 47 percent
Evard soils: 30 percent
Hayesville soils: 9 percent
Similar soils: 4 percent
Contrasting components: 10 percent

Minor Components

Similar soils:
- Tate soils on the lower side slopes and on footslopes

Contrasting components:
- Scattered areas of Slickens where minerals have been processed
- Udifluvents, loamy and sandy, on flood plains

Characteristics of the Gullied Land

Slope range: 5 to 35 percent
Drainage class: Well drained to excessively drained
Depth to bedrock: Varies
Position on the landscape: Sloping to very steep upland ridges and side slopes
Typical profile:

The profile of the Gullied land varies greatly; therefore, a typical pedon is not given.

Properties and Qualities of the Evard Soils

Slope range: 5 to 30 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Position on the landscape: Sloping to steep ridge crests and side slopes
Typical profile:

Surface layer—
0 to 5 inches; dark brown, very friable loam
Subsoil—
5 to 22 inches; yellowish red, friable clay loam
22 to 32 inches; reddish brown, very friable loam
Substratum—
32 to 60 inches; reddish brown fine sandy loam

Properties and Qualities of the Hayesville Soils

Slope range: 5 to 30 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Position on the landscape: Sloping to steep ridges and side slopes
Typical profile:

Surface layer—
0 to 2 inches; brown, very friable loam
Subsurface layer—
2 to 5 inches; brown, friable loam
Subsoil—
5 to 9 inches; yellowish red, friable clay loam
9 to 30 inches; red, firm clay
30 to 36 inches; red, firm clay loam
36 to 60 inches; red, friable loam

Map Unit Suitability

Cropland

The Gullied land is unsuited to cultivated crops. Extensive land shaping, intensive erosion-control measures, and fertility practices are needed. Some sloping and moderately steep areas of the Evard and Hayesville soils are suited to cropland if proper erosion-control measures are applied.

Pasture and Hayland

Most areas of this map are poorly suited to pasture and hay. Land shaping is needed during reclamation of the gullied areas. The Gullied land and the steepness of slope increase the difficulty of establishing vegetation and of properly maintaining pasture.

Woodland

Most areas of this map unit are suited to woodland. The hazard of erosion and difficulty in operating equipment are management concerns. In some areas special planning of roads and erosion-control measures may be required. Plant competition from undesirable species can be a problem when establishing a new forest crop.

Wildlife Habitat

The potential for woodland wildlife habitat is good in areas of the Evard and Hayesville soils. The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

Urban Uses

Areas of the Gullied land are unsuited to urban development. They require land shaping and reclamation. The gently sloping and sloping areas of the Evard and Hayesville soils are suited to some urban uses. The steepness of slope and low strength are the main limitations. Designing dwellings so that they conform to the existing slope reduces the need for land shaping. An onsite investigation is needed when the use and management of specific sites are planned.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Apison silt loam, 5 to 12 percent slopes, eroded, is a phase of the Apison series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Apison-Armuchee complex, 5 to 12 percent slopes, eroded, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the

soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

AnC2—Apison silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Upland ridges and side slopes
Size of areas: 5 to 50 acres
Major land use: Woodland, hay, or pasture

Composition

Apison soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
- Hamblen and Leadvale soils along drainageways
- Intermingled areas of Armuchee soils

Similar components:
- Scattered areas of soils that have more clay in the subsoil than the Apison soil
- Intermingled areas of soils that are more than 40 inches deep over bedrock

Typical Profile

Surface layer:
0 to 6 inches—brown, very friable silt loam
Subsoil:
6 to 20 inches—brownish yellow, friable silt loam
20 to 30 inches—brownish yellow, friable channery silt loam
Bedrock:
30 to 61 inches—pale brown, soft shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of erosion and the moderate available water capacity.
- Erosion is a moderate hazard if a conventional tillage system is used.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- A crop rotation that includes grasses and legumes helps to control erosion and improve the availability of nutrients.
- Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
- Few limitations affect the management of pasture and hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule help to maintain productivity and prevent overgrazing.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce the runoff rate.

Woodland

Suitability: Well suited
Management considerations:
- Few limitations affect forest management.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for openland and woodland wildlife habitat is good.
- Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
- Trees and brush along streams provide benefits to wildlife as well as erosion control.

• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitations are the depth to bedrock and the steepness of slope.
• Proper design, installation, and site preparation help to overcome the slope.

Interpretive Group

Land capability classification: 3e

ApC2—Apison-Armuchee complex, 5 to 12 percent slopes, eroded

Setting

Landscape position: Upland ridges and side slopes
Size of areas: 20 to 400 acres
Major land use: Hay and pasture

Composition

Apison soil and similar components: 40 to 60 percent
Armuchee soil and similar components: 20 to 40 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Hamblen and Leadvale soils along drainageways
• Isolated areas of Rock outcrop
Similar components:
• Intermingled areas of soils that are more than 40 inches deep over bedrock

Typical Profile

Apison

Surface layer:
0 to 6 inches—brown, very friable silt loam
Subsoil:
6 to 20 inches—brownish yellow, friable silt loam
20 to 30 inches—brownish yellow, friable channery silt loam
Bedrock:
30 to 61 inches—pale brown, soft shale

Armuchee

Surface layer:
0 to 4 inches—dark grayish brown, very friable channery silt loam
Subsoil:
4 to 7 inches—yellowish brown, friable channery silty clay loam
7 to 13 inches—strong brown, firm channery silty clay
Substratum:
13 to 21 inches—strong brown, firm very channery silty clay
Bedrock:
21 to 25 inches—soft, thin-bedded shale

Soil Properties and Qualities

Apison

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Armuchee

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concern is the hazard of erosion in areas of the Apison and Armuchee soils. The moderate available water capacity is an additional limitation in areas of the Apison soil. The shallow root zone, depth to bedrock, and low available water capacity are additional limitations in areas of the Armuchee soil.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management,

contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
• The main limitations are the moderate available water capacity of the Apison soil and the low available water capacity of the Armuchee soil.
• Yields are reduced during periods of low precipitation.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is good in areas of the Apison soil and fair in areas of the Armuchee soil.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitations are low strength, the depth to bedrock, and the steepness of slope. The moderate permeability, the clayey subsoil, and the moderate shrink-swell potential are additional limitations in areas of the Armuchee soil.
• Low strength may be a problem on sites for local roads and streets or when the soils are used as a source of roadfill.
• The depth to bedrock is a limitation affecting some building site development.
• The steepness of slope is a limitation affecting most urban development.
• The clayey texture and moderate permeability in the subsoil of the Armuchee soil are limitations affecting some sanitary facilities and building site development.
• The shrink-swell potential in the subsoil of the Armuchee soil may be a limitation when footers and basements are constructed.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: Apison—3e; Armuchee—4e

ApD2—Apison-Armuchee complex, 12 to 25 percent slopes, eroded

Setting

Landscape position: Upland ridges and side slopes
Size of areas: 20 to 400 acres
Major land use: Hay and pasture

Composition

Apison soil and similar components: 40 to 50 percent
Armuchee soil and similar components: 30 to 40 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Hamblen and Leadvale soils along drainageways
• Isolated areas of Rock outcrop
Similar components:
• Intermingled areas of soils that are more than 40 inches deep over bedrock

Typical Profile

Apison

Surface layer:
0 to 6 inches—brown, very friable silt loam
Subsoil:
6 to 20 inches—brownish yellow, friable silt loam
20 to 30 inches—brownish yellow, friable channery silt loam
Bedrock:
30 to 61 inches—pale brown, soft shale

Armuchee

Surface layer:
0 to 4 inches—dark grayish brown, very friable channery silt loam
Subsoil:
4 to 7 inches—yellowish brown, friable channery silty clay loam
7 to 13 inches—strong brown, firm channery silty clay
Substratum:
13 to 21 inches—strong brown, firm very channery silty clay
Bedrock:
21 to 25 inches—soft, thin-bedded shale

Soil Properties and Qualities

Apison

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Armuchee

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
- The main management concerns are the hazard of erosion and the steepness of slope. The moderate available water capacity is an additional limitation in areas of the Apison soil. The shallow root zone, the depth to bedrock, and the low available water capacity are additional limitations in areas of the Armuchee soil.
- Intensive erosion-control measures are needed if these soils are used for cultivated crops.

Pasture and Hay

Suitability: Suited
Management considerations:
- The main limitations are the moderate available water capacity of the Apison soil and the low available water capacity of the Armuchee soil.
- The steepness of slope can be a limitation affecting hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
- The major management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
- The hazard of erosion can be reduced by establishing roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes are generally short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have

smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the seasonal high water table and the shallow rooting depth of the Armuchee soil.
• Aspect, depth to bedrock, and stoniness should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until the desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is good in areas of the Apison soil and fair in areas of the Armuchee soil.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are low strength, the depth to bedrock, and the steepness of slope.
• Low strength may be a problem on sites for local roads and streets or when the soils are used as a source of roadfill.
• The depth to bedrock is a limitation affecting some building site development.
• The steepness of slope is a limitation affecting most urban development.
• The moderate permeability in the subsoil of the Armuchee soil and the clayey subsoil are limitations affecting some sanitary facilities and building site development.
• The moderate shrink-swell potential in the subsoil of the Armuchee soil may be a limitation when footers and basements are constructed.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: Apison—4e; Armuchee—6e

Ar—Arkaqua-Suches complex, occasionally flooded

Setting

Landscape position: Flood plains
Size of areas: 10 to 100 acres
Major land use: Hay, pasture, or row crops

Composition

Arkaqua soil and similar components: 30 to 55 percent
Suches soil and similar components: 25 to 50 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Tate soils at the slightly higher elevations
• Soils that are not flooded or are subject to rare flooding
Similar components:
• Soils that have less clay in the subsoil than the Arkaqua and Suches soils

Typical Profile

Arkaqua

Surface layer:
0 to 6 inches—brown, very friable silt loam
Subsoil:
6 to 13 inches—olive brown, friable silt loam
13 to 25 inches—light olive brown, friable silt loam
25 to 37 inches—very dark gray, friable silt loam
Substratum:
37 to 41 inches—dark gray, friable loam
41 to 50 inches—mottled very dark gray and dark gray, friable loam
50 to 61 inches—stratified layers of gravel

Suches

Surface layer:
0 to 10 inches—dark brown, friable loam
Subsoil:
10 to 23 inches—yellowish brown, friable loam
23 to 31 inches—yellowish brown, friable loam that has grayish brown mottles
31 to 41 inches—light brownish gray, friable loam

Substratum:
41 to 60 inches—light brownish gray, friable stratified loam and fine sandy loam

Soil Properties and Qualities

Arkaqua

Drainage class: Somewhat poorly drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Between depths of 18 and 24 inches
Flooding: Occasional; in winter and early spring
Soil reaction: Very strongly acid to moderately acid unless limed
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Suches

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Between depths of 30 and 48 inches
Flooding: Occasional; in winter and early spring
Soil reaction: Very strongly acid to moderately acid unless limed
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main limitations are the seasonal high water table in areas of the Arkaqua soil and the flooding in areas of the Arkaqua and Suches soils.
• In some years the wetness delays planting or hinders harvesting in areas of the Arkaqua soil.
• Species that have a short growing season and can tolerate the wetness should be selected for planting.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations, except for the flooding and the wetness, affect the management of pasture and hayland.
• Some hay crops may be damaged by flooding in the spring.
• The species that can tolerate the wetness and the flooding should be selected for planting.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the equipment limitation and the seedling mortality rate in areas of the Arkaqua soil and plant competition in areas of the Arkaqua and Suches soils.
• Operating equipment when the soils are wet may result in excessive rutting and miring. These hazards can be avoided by delaying equipment use until the soils are dry and adding gravel or other suitable subgrade material to the main roads.
• Nearby areas of better suited soils should be selected as sites for roads if possible.
• When establishing a new forest crop, the seedling mortality rate may be high because of the seasonal high water table.
• Depth to the seasonal high water table should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• Preparing the seedbed so that seedlings can be planted on ridges helps to overcome the wetness.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair or good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.

• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the flooding and the wetness, which are difficult to overcome.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: Arkaqua—4w; Suches—2w

AuC2—Armuchee channery silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Upland ridges and side slopes
Size of areas: 5 to 100 acres
Major land use: Pasture, hay, or woodland

Composition

Armuchee soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Hamblen and Leadvale soils along drainageways
• Isolated areas of Rock outcrop
Similar components:
• Intermingled areas of Apison and Needmore soils
• Intermingled areas of soils that have less clay in the subsoil than the Armuchee soil
• Scattered areas of soils that have a lower content of rock fragments than the Armuchee soil

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown, very friable channery silt loam
Subsoil:
4 to 7 inches—yellowish brown, friable channery silty clay loam
7 to 13 inches—strong brown, firm channery silty clay
Substratum:
13 to 21 inches—strong brown, firm very channery silty clay
Bedrock:
21 to 25 inches—soft, thin-bedded shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concerns are the hazard of erosion, the depth to bedrock, and the low available water capacity.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Suited
Management considerations:
• The main limitation is the low available water capacity.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.

• See table 7 for specific information concerning potential productivity and suggested trees to plant on this soil.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for openland and woodland wildlife habitat is fair.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the moderately slow permeability, the clayey subsoil, low strength, the shrink-swell potential, the depth to bedrock, and the steepness of slope.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

AuD2—Armuchee channery silt loam, 12 to 25 percent slopes, eroded

Setting

Landscape position: Upland ridges and side slopes
Size of areas: 5 to 100 acres
Major land use: Pasture, hay, or woodland

Composition

Armuchee soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Hamblen and Leadvale soils along drainageways
• Isolated areas of Rock outcrop
Similar components:
• Intermingled areas of Apison and Needmore soils
• Soils that have less clay in the subsoil than the Armuchee soil
• Scattered areas of soils that have a lower content of rock fragments than the Armuchee soil

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown, very friable channery silt loam
Subsoil:
4 to 7 inches—yellowish brown, friable channery silty clay loam
7 to 13 inches—strong brown, firm channery silty clay
Substratum:
13 to 21 inches—strong brown, firm very channery silty clay
Bedrock:
21 to 25 inches—soft, thin-bedded shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns are the hazard of erosion, the depth to bedrock, and the low available water capacity.
• A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
• The main limitations are the low available water capacity and the steepness of slope.
• Proper stocking rates, pasture rotation, deferred

grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance to the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes are generally short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the low available water capacity.
• The depth to bedrock should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for openland and woodland wildlife habitat is fair.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the moderately slow permeability, the clayey subsoil, low strength, the shrink-swell potential, the depth to bedrock, and the steepness of slope.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

AuE—Armuchee channery silt loam, 25 to 50 percent slopes

Setting

Landscape position: Upland ridges and side slopes
Size of areas: 10 to 100 acres
Major land use: Woodland

Composition

Armuchee soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Hamblen and Leadvale soils along drainageways
• Isolated areas of Rock outcrop
Similar components:
• Intermingled areas of Apison and Needmore soils
• Intermingled areas of soils that have less clay in the subsoil than the Armuchee soil
• Scattered areas of soils that have a lower content of rock fragments than the Armuchee soil

Typical Profile

Surface layer:
0 to 8 inches—dark grayish brown, very friable channery silt loam
Subsoil:
8 to 17 inches—yellowish brown, friable channery silty clay loam
Substratum:
17 to 24 inches—strong brown, firm very channery silty clay
Bedrock:
24 to 60 inches—soft, thin-bedded shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns are the hazard of erosion, the depth to bedrock, and the low available water capacity.
• A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
• The main limitations are the low available water capacity and the steepness of slope.
• A better suited site should be selected.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance to the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes are generally short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the low available water capacity.
• The depth to bedrock should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is fair.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited
Management considerations:
• The main limitations are the moderately slow permeability, the clayey subsoil, low strength, the shrink-swell potential, the depth to bedrock, and the steepness of slope.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 7e

BrC—Brevard loam, 5 to 15 percent slopes

Setting

Landscape position: Footslopes, coves, and valley-fill areas
Size of areas: 20 to 250 acres
Major land use: Woodland or pasture

Composition

Brevard soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Intermingled areas of Junaluska soils on the adjacent side slopes
• Suches soils along streams and drainageways
Similar components:
• Small, intermingled areas of Citico soils

Typical Profile

Surface layer:
0 to 2 inches—dark brown, very friable loam
Subsurface layer:
2 to 7 inches—strong brown, very friable silt loam
Subsoil:
7 to 70 inches—yellowish red, friable silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The hazard of erosion is the main management concern.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.

• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability and the steepness of slope.
• The moderate permeability in the subsoil is a limitation affecting some sanitary facilities.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

BrD—Brevard loam, 15 to 25 percent slopes

Setting

Landscape position: Footslopes, coves, and valley-fill areas
Size of areas: 25 to 150 acres
Major land use: Woodland

Composition

Brevard soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Intermingled areas of Junaluska soils on the adjacent side slopes
• Suches soils along streams and drainageways
Similar components:
• Small, intermingled areas of Citico soils

Typical Profile

Surface layer:
0 to 2 inches—dark brown, very friable loam
Subsurface layer:
2 to 7 inches—strong brown, very friable silt loam
Subsoil:
7 to 70 inches—yellowish red, friable silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The hazard of erosion is the main management concern.
• Erosion is a severe hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Suited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.

• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high.
• Reinforcement plantings can be made until a desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability and the steepness of slope.
• The moderate permeability in the subsoil is a limitation affecting some sanitary facilities.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

BrE—Brevard loam, 25 to 45 percent slopes

Setting

Landscape position: Footslopes, coves, and valley-fill areas
Size of areas: 25 to 150 acres
Major land use: Woodland

Composition

Brevard soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Intermingled areas of Junaluska and Tsali soils on the adjacent side slopes
• Suches soils along streams and drainageways
Similar components:
• Small, intermingled areas of Citico soils

Typical Profile

Surface layer:
0 to 2 inches—dark brown, very friable loam
Subsurface layer:
2 to 7 inches—strong brown, very friable silt loam
Subsoil:
7 to 70 inches—yellowish red, friable silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concern is the hazard of erosion.
• A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
• The main limitation is the steepness of slope.

• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high.
• Reinforcement plantings can be made until a desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability and the steepness of slope.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 7e

CaF—Cataska-Rock outcrop complex, 35 to 65 percent slopes

Setting

Landscape position: Upland shoulder slopes and the upper side slopes, mainly on Starr and Chilhowee Mountains
Size of areas: 300 to 800 acres
Major land use: Woodland

Composition

Cataska soil and similar components: 60 to 80 percent
Rock outcrop and similar components: 15 to 25 percent
Contrasting components: 15 to 25 percent

Minor Components

Contrasting components:
• Keener soils in coves and on benches
• Unicoi soils in areas where sandstone bedrock is dominant
Similar components:
• Intermingled areas of Junaluska and Tsali soils in landscape positions similar to those of the Cataska soil

Typical Profile

Cataska

Surface layer:
0 to 1 inch—very dark grayish brown, very friable channery silt loam
Subsurface layer:
1 to 5 inches—brown, very friable channery silt loam
Subsoil:
5 to 15 inches—strong brown, friable very channery silt loam
Bedrock:
15 to 24 inches—soft, thin-bedded phyllite
24 inches—hard, fractured phyllite

Rock outcrop

The Rock outcrop occurs as areas of exposed phyllite, slate, and metamorphosed shale and siltstone. It is in scattered areas throughout this unit. Most outcrops protrude a few inches to about 24 inches above the surface. Some are on nearly vertical bluffs. Rock outcrop supports little or no vegetation.

Soil Properties and Qualities

Cataska

Drainage class: Excessively drained
Permeability: Moderately rapid or rapid
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: 10 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concerns are the hazard of erosion, the shallow root zone, the depth to bedrock, the very low available water capacity, and the Rock outcrop.
- A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
- The main limitations are the very low available water capacity, the Rock outcrop, and the steepness of slope.
- A better suited site should be selected.

Woodland

Suitability: Poorly suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, plant competition, the seedling mortality rate, and the hazard of windthrow.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cutting or by applying herbicides.
- When establishing a new forest crop, the seedling mortality rate may be high because of a shallow rooting depth and the very low available water capacity.
- Aspect, the depth to bedrock, and the stoniness should be considered carefully when planting sites are selected for seedlings.
- Reinforcement plantings can be made until a desired stand is attained.
- Windthrow is a hazard in some areas because of the shallow root zone.
- The windthrow hazard can be reduced by applying a carefully regulated thinning program.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban Uses

Suitability: Unsuited
Management considerations:
- The main limitations are the depth to bedrock and the steepness of slope.
- Better suited sites should be considered.

Interpretive Group

Land capability classification: Cataska—7s; Rock outcrop—8s

CaG—Cataska-Rock outcrop complex, 65 to 90 percent slopes

Setting

Landscape position: Upper side slopes along the Ocoee and Hiwassee Rivers
Size of areas: 100 to 800 acres
Major land use: Woodland

Composition

Cataska soil and similar components: 60 to 80 percent
Rock outcrop and similar components: 15 to 25 percent
Contrasting components: 15 to 25 percent

Minor Components

Contrasting components:
• Keener soils in coves and on benches
• Unicoi soils in areas where sandstone bedrock is dominant
Similar components:
• Intermingled areas of Junaluska and Tsali soils in landscape positions similar to those of the Cataska soil

Typical Profile

Cataska

Surface layer:
0 to 1 inch—very dark grayish brown, very friable channery silt loam
Subsurface layer:
1 to 5 inches—brown, very friable channery silt loam
Subsoil:
5 to 15 inches—strong brown, friable very channery silt loam
Bedrock:
15 to 24 inches—soft, thin-bedded phyllite
24 inches—hard, fractured phyllite

Rock outcrop

The Rock outcrop occurs as areas of exposed phyllite, slate, and metamorphosed shale and siltstone. It is in scattered areas throughout this unit. Most outcrops protrude a few inches to about 24 inches above the surface. Some are on nearly vertical bluffs. Rock outcrop supports little or no vegetation.

Soil Properties and Qualities

Cataska

Drainage class: Excessively drained
Permeability: Moderately rapid or rapid
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: 10 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns are the hazard of erosion, the shallow root zone, the depth to bedrock, the very low available water capacity, and the Rock outcrop.
• A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
• The main limitations are the very low available water capacity, the Rock outcrop, and the steepness of slope.
• A better suited site should be selected.

Woodland

Suitability: Poorly suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, the seedling mortality rate, and the hazard of windthrow.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of a shallow rooting depth and the very low available water capacity.

• Aspect, the depth to bedrock, and the stoniness should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban Uses

Suitability: Unsuited
Management considerations:
• The main limitations are the depth to bedrock and the steepness of slope.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: Cataska—7s; Rock outcrop—8s

CcD—Citico channery silt loam, 15 to 35 percent slopes

Setting

Landscape position: Lower side slopes in the Southern Blue Ridge Mountains
Size of areas: 10 to 200 acres
Major land use: Woodland

Composition

Citico soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Scattered areas of Junaluska and Tsali soils on the adjacent side slopes
Similar components:
• A few areas of Tusquitee soils in coves
• Intermingled areas of Keener soils

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown, very friable channery silt loam
Subsurface layer:
4 to 12 inches—dark yellowish brown, friable channery silt loam
Subsoil:
12 to 31 inches—dark yellowish brown, friable very channery silt loam
Substratum:
31 to 45 inches—yellowish brown, friable very flaggy silt loam
Bedrock:
45 inches—hard phyllite

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid
Depth to bedrock: 40 to 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concern is the hazard of erosion.
• A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.

• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The depth to bedrock is a limitation affecting some building site development.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

CcF—Citico channery silt loam, 35 to 65 percent slopes

Setting

Landscape position: Lower side slopes in the Southern Blue Ridge Mountains
Size of areas: 10 to 200 acres
Major land use: Woodland

Composition

Citico soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Scattered areas of Junaluska and Tsali soils on the adjacent side slopes
Similar components:
• A few areas of Tusquitee soils in coves
• Intermingled areas of Keener soils
• Brevard soils on footslopes

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown, very friable channery silt loam
Subsurface layer:
4 to 12 inches—dark yellowish brown, friable channery silt loam
Subsoil:
12 to 31 inches—dark yellowish brown, friable very channery silt loam
Substratum:
31 to 45 inches—yellowish brown, friable very flaggy silt loam
Bedrock:
45 inches—hard phyllite

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid
Depth to bedrock: 40 to 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited

Management considerations:
- The main management concern is the hazard of erosion.
- A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
- The main limitation is the steepness of slope.
- A better suited site should be selected.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cutting or by applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for woodland wildlife habitat is good.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited
Management considerations:
- The main limitations are the depth to bedrock and the steepness of slope.
- A better suited site should be considered.

Interpretive Group

Land capability classification: 7e

CoC2—Collegedale silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Upland ridges and side slopes
Size of areas: 10 to 150 acres
Major land use: Pasture, hay, or woodland

Composition

Collegedale soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
- Hamblen and Toccoa soils along streams and narrow drainageways
- Intermingled areas of Apison and Armuchee soils where shale bedrock is dominant
- Isolated areas of Talbott soils

Similar components:
- Scattered areas of Decatur, Minvale, and Waynesboro soils

Typical Profile

Surface layer:
0 to 6 inches—yellowish brown, friable silt loam
Subsoil:
6 to 17 inches—yellowish red, firm clay
17 to 26 inches—strong brown, firm clay
26 to 45 inches—yellowish red, firm clay
45 to 53 inches—mottled yellowish red, yellowish brown, strong brown, and white, firm silty clay
53 to 65 inches—yellowish red, firm clay

Soil Properties and Qualities

Drainage class: Well drained

Permeability: Moderate or moderately slow
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid unless limed
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The hazard of erosion is the main management concern.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
• The moderate permeability and the clayey textures in the subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a limitation when footers and basements are constructed.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

CoD2—Collegedale silt loam, 12 to 25 percent slopes, eroded

Setting

Landscape position: Upland ridges and side slopes
Size of areas: 10 to 150 acres
Major land use: Woodland, pasture, or hay

Composition

Collegedale soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Hamblen and Toccoa soils along streams and narrow drainageways
• Intermingled areas of Apison and Armuchee soils where shale bedrock is dominant
• Isolated areas of Talbott soils
Similar components:
• Scattered areas of Decatur, Minvale, and Waynesboro soils
• Severely eroded soils

Typical Profile

Surface layer:
0 to 6 inches—yellowish brown, friable silt loam
Subsoil:
6 to 17 inches—yellowish red, firm clay
17 to 26 inches—strong brown, firm clay
26 to 45 inches—yellowish red, firm clay
45 to 53 inches—mottled yellowish red, yellowish brown, strong brown, and white, firm silty clay
53 to 65 inches—yellowish red, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately slow
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid unless limed
Depth to bedrock: More than 60 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concern is the hazard of erosion.

Pasture and Hay

Suitability: Suited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.

• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
• The moderate permeability and the clayey textures in the subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a limitation when footers and basements are constructed.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

DeB2—Decatur silt loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: High stream terraces
Size of areas: 10 to 100 acres
Major land use: Hay, pasture, or cultivated crops

Composition

Decatur soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Emory soils in depressions and along drainageways
Similar components:
• Intermingled areas of Collegedale and Waynesboro soils
• Scattered areas of soils that have less clay in the subsoil than the Decatur soil

Typical Profile

Surface layer:
0 to 6 inches—dark reddish brown, friable silt loam
Subsoil:
6 to 28 inches—dark red, friable clay
28 to 67 inches—dark red, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid in unlimed areas
Depth to bedrock: More than 72 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Well suited
Management considerations:
• Few limitations affect the management of cropland.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.

• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, and the shrink-swell potential.
• The moderate permeability and the clayey textures in the subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a limitation when footers and basements are constructed.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 2e

DeC2—Decatur silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: High stream terraces
Size of areas: 10 to 150 acres
Major land use: Hay, pasture, or cultivated crops

Composition

Decatur soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Emory soils in depressions and along drainageways
Similar components:
• Intermingled areas of Collegedale and Waynesboro soils
• Scattered areas of soils that have less clay in the subsoil than the Decatur soil

Typical Profile

Surface layer:
0 to 6 inches—dark reddish brown, friable silt loam
Subsoil:
6 to 28 inches—dark red, friable clay
28 to 67 inches—dark red, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid in unlimed areas
Depth to bedrock: More than 72 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The hazard of erosion is the main management concern.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.

• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
• The moderate permeability and the clayey textures in the subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The shrink-swell potential in the subsoil may be a limitation when footers and basements are constructed.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

DeD2—Decatur silt loam, 12 to 20 percent slopes, eroded

Setting

Landscape position: High stream terraces
Size of areas: 10 to 50 acres
Major land use: Hay, pasture, or cultivated crops

Composition

Decatur soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Emory soils in depressions and along drainageways
Similar components:
• Intermingled areas of Collegedale and Waynesboro soils
• Scattered areas of soils that have less clay in the subsoil than the Decatur soil

Typical Profile

Surface layer:
0 to 6 inches—dark reddish brown, friable silt loam
Subsoil:
6 to 28 inches—dark red, friable clay
28 to 67 inches—dark red, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid in unlimed areas
Depth to bedrock: More than 72 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The hazard of erosion is the main management concern.
• Erosion is a severe hazard if a conventional tillage system is used.

• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Suited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes are generally short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for openland wildlife habitat is fair.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the moderate permeability, the clayey subsoil, low strength, the shrink-swell potential, and the steepness of slope.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

DtD—Ditney loam, 12 to 35 percent slopes

Setting

Landscape position: Upland ridgetops, shoulder slopes, and the upper side slopes
Size of areas: 25 to 250 acres
Major land use: Woodland

Composition

Ditney soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Scattered areas of Evard soils
• Small areas of Tsali soils
• Unicoi soils in convex areas
• Jeffrey soils on footslopes and in coves
Similar components:
• Intermingled areas of Junaluska soils

Typical Profile

Surface layer:
0 to 3 inches—dark yellowish brown, very friable loam
Subsurface layer:
3 to 7 inches—yellowish brown, very friable loam
Subsoil:
7 to 15 inches—yellowish brown, friable loam
15 to 25 inches—strong brown, friable cobbly loam
25 to 35 inches—brown, friable cobbly loam
Bedrock:
35 inches—hard arkosic sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concern is the hazard of erosion.
- A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
- The main limitations are the moderate available water capacity and the steepness of slope.
- The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the equipment limitation, plant competition, and the seedling mortality rate.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cutting or by applying herbicides.
- When establishing a new forest crop, the seedling mortality rate may be high because of the moderate available water capacity.
- Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
- Reinforcement plantings can be made until a desired stand is attained.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for woodland wildlife habitat is good.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
- The main limitations are the depth to bedrock and the steepness of slope.
- Proper design, installation, and site preparation may help to overcome the limitations.

Interpretive Group

Land capability classification: 6e

DtF—Ditney loam, 35 to 65 percent slopes

Setting

Landscape position: Upland ridgetops, shoulder slopes, and the upper side slopes
Size of areas: 20 to 250 acres
Major land use: Woodland

Composition

Ditney soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
- Scattered areas of Evard soils
- Small areas of Tsali soils
- Unicoi soils in convex areas
- Jeffrey soils on footslopes and in coves

Similar components:
- Intermingled areas of Junaluska soils

Typical Profile

Surface layer:
0 to 3 inches—dark yellowish brown, very friable loam
Subsurface layer:
3 to 7 inches—yellowish brown, very friable loam
Subsoil:
7 to 15 inches—yellowish brown, friable loam
15 to 25 inches—strong brown, friable cobbly loam
25 to 35 inches—brown, friable cobbly loam
Bedrock:
35 inches—hard arkosic sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concern is the hazard of erosion.
- A better suited site should be considered.

Pasture and Hay

Suitability: Unsuited
Management considerations:
- The main limitations are the moderate available water capacity and the steepness of slope.
- A better suited site should be selected.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the erosion hazard, the equipment limitation, plant competition, and the seedling mortality rate.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cutting or by applying herbicides.
- When establishing a new forest crop, the seedling mortality rate may be high because of the moderate available water capacity.
- Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
- Reinforcement plantings can be made until a desired stand is attained.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for woodland wildlife habitat is good.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited
Management considerations:
• The main limitations are the depth to bedrock and the steepness of slope.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 7e

Ea—Emory silt loam, 0 to 4 percent slopes, occasionally flooded

Setting

Landscape position: Flood plains, narrow drainageways, and upland depressions
Size of areas: 5 to 50 acres
Major land use: Pasture, hay, or row crops

Composition

Emory soil and similar components: 80 to 90 percent
Contrasting components: 10 to 20 percent

Minor Components

Contrasting components:
• Soils that are at the slightly higher elevations and are not flooded
• Isolated areas of Decatur, Collegedale, and Waynesboro soils
Similar components:
• Soils that have lighter colors in the surface layer than the Emory soil
• Moderately well drained soils

Typical Profile

Surface layer:
0 to 8 inches—dark reddish brown, friable silt loam
Subsoil:
8 to 23 inches—dark reddish brown, friable silty clay loam
Buried surface layer:
23 to 32 inches—dark reddish brown, friable silt loam
Buried subsoil:
32 to 38 inches—reddish brown, friable silty clay loam
38 to 46 inches—strong brown, friable silty clay loam
46 to 60 inches—strong brown, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 60 inches
Flooding: Occasional; in winter and early spring
Soil reaction: Strongly acid or moderately acid unless limed
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main management concern is the flooding.
• Some crops may be damaged by flooding in winter and early spring.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.

• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main management concern is the flooding, which is difficult to overcome.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 2w

EdC—Evard loam, 5 to 15 percent slopes

Setting

Landscape position: Upland ridgetops at the lower elevations of the Southern Blue Ridge Mountains
Size of areas: 30 to 300 acres
Major land use: Hay, pasture, cultivated crops, or woodland

Composition

Evard soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Contrasting components:
• Intermingled areas of Junaluska and Tsali soils
Similar components:
• Scattered areas of Hayesville soils

Typical Profile

Surface layer:
0 to 5 inches—dark brown, very friable loam
Subsoil:
5 to 22 inches—yellowish red, friable clay loam
22 to 32 inches—reddish brown, very friable loam
Substratum:
32 to 60 inches—reddish brown, very friable fine sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The hazard of erosion is the main management concern.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• The steepness of slope may limit the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitation affecting urban uses is the steepness of slope.
• Proper design, installation, and site preparation may help to overcome the slope.

Interpretive Group

Land capability classification: 3e

EdD—Evard loam, 15 to 30 percent slopes

Setting

Landscape position: Upland ridgetops and side slopes at the lower elevations of the Southern Blue Ridge Mountains
Size of areas: 30 to 350 acres
Major land use: Hay, pasture, or woodland

Composition

Evard soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Contrasting components:
• Intermingled areas of Junaluska and Tsali soils
• Isolated areas of Rock outcrop
• Evard soils that are severely eroded or gullied
Similar components:
• Scattered areas of Hayesville soils

Typical Profile

Surface layer:
0 to 5 inches—dark brown, very friable loam
Subsoil:
5 to 22 inches—yellowish red, friable clay loam
22 to 32 inches—reddish brown, very friable loam
Substratum:
32 to 60 inches—reddish brown, very friable fine sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concern is the hazard of erosion.
• A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can

be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes are generally short enough that conventional equipment can be used.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.
• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitation is the steepness of slope.
• Proper design, installation, and site preparation may help to overcome the slope.

Interpretive Group

Land capability classification: 6e

ErC—Evard-Hayesville complex, 5 to 15 percent slopes

Setting

Landscape position: Uplands in the Copper Basin
Size of areas: 30 to 400 acres
Major land use: Woodland, pasture, or, in many areas, idle land

Composition

Evard soil and similar components: 40 to 50 percent
Hayesville soil and similar components: 30 to 40 percent
Contrasting components: 10 to 20 percent

Minor Components

Contrasting components:
• Scattered areas of Tsali soils
• Isolated areas of Gullied land and Rock outcrop
Similar components:
• Tate soils on footslopes and alluvial fans
• Intermingled areas of soils that have a higher content of rock fragments than the Evard and Hayesville soils

Typical Profile

Evard

Surface layer:
0 to 5 inches—dark brown, very friable loam
Subsoil:
5 to 22 inches—yellowish red, friable clay loam
22 to 32 inches—reddish brown, very friable loam
Substratum:
32 to 60 inches—reddish brown, very friable fine sandy loam

Hayesville

Surface layer:
0 to 2 inches—brown, very friable loam
Subsurface layer:
2 to 5 inches—brown, friable loam
Subsoil:
5 to 9 inches—yellowish red, friable clay loam
9 to 30 inches—red, firm clay
30 to 36 inches—red, firm clay loam
36 to 60 inches—red, friable loam

Soil Properties and Qualities

Evard

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate

Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Hayesville

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid unless limed
Depth to bedrock: More than 72 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The hazard of erosion is the main management concern.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitations are low strength and the steepness of slope.
• Low strength may be a problem on sites for local roads and streets or when the Hayesville soil is used as a source of roadfill.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

ErD—Evard-Hayesville complex, 15 to 30 percent slopes

Setting

Landscape position: Uplands in the Copper Basin
Size of areas: 45 to 500 acres
Major land use: Woodland, pasture, or, in many areas, idle land

Composition

Evard soil and similar components: 40 to 50 percent
Hayesville soil and similar components: 30 to 40 percent
Contrasting components: 10 to 20 percent

Minor Components

Contrasting components:
- Scattered areas of Tsali soils
- Isolated areas of Gullied land and Rock outcrop

Similar components:
- Tate soils on footslopes and alluvial fans
- Intermingled areas of soils that have a higher content of rock fragments than the Evard and Hayesville soils

Typical Profile

Evard

Surface layer:
0 to 5 inches—dark brown, very friable loam
Subsoil:
5 to 22 inches—yellowish red, friable clay loam
22 to 32 inches—reddish brown, very friable loam
Substratum:
32 to 60 inches—reddish brown, very friable fine sandy loam

Hayesville

Surface layer:
0 to 2 inches—brown, very friable loam
Subsurface layer:
2 to 5 inches—brown, friable loam
Subsoil:
5 to 9 inches—yellowish red, friable clay loam
9 to 30 inches—red, firm clay
30 to 36 inches—red, firm clay loam
36 to 60 inches—red, friable loam

Soil Properties and Qualities

Evard

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Hayesville

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid unless limed
Depth to bedrock: More than 72 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concern is the hazard of erosion.
- A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
- The main limitation is the steepness of slope.
- The steepness of slope increases the difficulty of properly managing pastures and limits the use of these soils as hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.

• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes are generally short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are low strength and the steepness of slope.
• Low strength may be a problem on sites for local roads and streets or when the Hayesville soil is used as a source of roadfill.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

EvC—Evard-Hayesville complex, 5 to 15 percent slopes, gullied

Setting

Landscape position: Uplands in the Copper Basin
Size of areas: 30 to 400 acres
Major land use: Woodland, pasture, or idle land in many areas

Composition

Evard soil and similar components: 40 to 50 percent
Hayesville soil and similar components: 30 to 40 percent
Contrasting components: 10 to 20 percent

Minor Components

Contrasting components:
• Scattered areas of Tsali soils
• Isolated areas of Gullied land and Rock outcrop
Similar components:
• Tate soils on footslopes and alluvial fans
• Intermingled areas of soils that have a higher content of rock fragments than the Evard and Hayesville soils

Typical Profile

Evard

Surface layer:
0 to 5 inches—dark brown, very friable loam
Subsoil:
5 to 22 inches—yellowish red, friable clay loam
22 to 32 inches—reddish brown, very friable loam
Substratum:
32 to 60 inches—reddish brown, very friable fine sandy loam

Hayesville

Surface layer:
0 to 2 inches—brown, very friable loam
Subsurface layer:
2 to 5 inches—brown, friable loam
Subsoil:
5 to 9 inches—yellowish red, friable clay loam
9 to 30 inches—red, firm clay

30 to 36 inches—red, firm clay loam
36 to 60 inches—red, friable loam

Soil Properties and Qualities

Evard

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Hayesville

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid unless limed
Depth to bedrock: More than 72 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The hazard of erosion is the main management concern.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation is a necessary management practice in most areas.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Land shaping and reclamation may be needed in some gullied areas.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitations are low strength and the steepness of slope.
• Low strength may be a problem on sites for local roads and streets or when the Hayesville soil is used as a source of roadfill.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

EvD—Evard-Hayesville complex, 15 to 30 percent slopes, gullied

Setting

Landscape position: Uplands in the Copper Basin
Size of areas: 45 to 500 acres
Major land use: Woodland, pasture, or, in many areas, idle land

Composition

Evard soil and similar components: 40 to 50 percent
Hayesville soil and similar components: 30 to 40 percent
Contrasting components: 10 to 20 percent

Minor Components

Contrasting components:
- Scattered areas of Tsali soils
- Isolated areas of Gullied land and Rock outcrop

Similar components:
- Tate soils on footslopes and alluvial fans
- Intermingled areas of soils that have a higher content of rock fragments than the Evard and Hayesville soils

Typical Profile

Evard

Surface layer:
0 to 5 inches—dark brown, very friable loam
Subsoil:
5 to 22 inches—yellowish red, friable clay loam
22 to 32 inches—reddish brown, very friable loam
Substratum:
32 to 60 inches—reddish brown, very friable fine sandy loam

Hayesville

Surface layer:
0 to 2 inches—brown, very friable loam
Subsurface layer:
2 to 5 inches—brown, friable loam
Subsoil:
5 to 9 inches—yellowish red, friable clay loam
9 to 30 inches—red, firm clay
30 to 36 inches—red, firm clay loam
36 to 60 inches—red, friable loam

Soil Properties and Qualities

Evard

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Hayesville

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid unless limed
Depth to bedrock: More than 72 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concern is the hazard of erosion.
- A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
- The main limitation is the steepness of slope.
- Land shaping and reclamation may be needed in some gullied areas.
- The steepness of slope increases the difficulty of properly managing pastures and limits the use of these soils as hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.

• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes are generally short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are low strength and the steepness of slope.
• Low strength may be a problem on sites for local roads and streets or when the Hayesville soil is used as a source of roadfill.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

GeC—Gullied land-Evard complex, 5 to 15 percent slopes

Setting

Landscape position: Uplands in the Copper Basin
Size of areas: 5 to 250 acres
Major land use: Idle land in many areas; covered with broom sedge, greenbrier, huckleberry, sourwood, mountain laurel, and sassafras; some areas planted to loblolly pine, sericea lespedeza, weeping lovegrass, and Japanese fleece flower

Composition

Gullied land and similar components: 10 to 85 percent
Evard soil and similar components: 15 to 50 percent
Contrasting components: 15 to 25 percent

Minor Components

Contrasting components:
• Isolated areas of Rock outcrop
• Udorthents along drainageways
Similar components:
• Intermingled areas of Evard soils where the subsoil is exposed
• Isolated areas of Hayesville soils on ridges and pinnacles between gullies

Typical Profile

Gullied land

The soils in areas of Gullied land vary greatly. Their color ranges from yellowish brown to red, and texture is generally loam, clay loam, clay, sandy clay loam, sandy loam, or fine sandy loam. The thickness of the surface layer ranges from 0 to 4 inches, and the thickness of the subsoil ranges from 0 to 20 inches. Depth to bedrock ranges from 0 to about 48 inches. Soft and hard quartzite, gneiss, and mica schist are at the surface in places.

Evard

Surface layer:
0 to 5 inches—dark brown, very friable loam

Subsoil:
5 to 22 inches—yellowish red, friable clay loam
22 to 32 inches—reddish brown, very friable loam
Substratum:
32 to 60 inches—reddish brown, very friable fine sandy loam

Soil Properties and Qualities

Gullied land

The Gullied land consists of truncated soils and areas of U-shaped and V-shaped gullies that formed when the original soils were denuded of vegetation and very severely eroded. It includes some areas of Rock outcrop where most of the subsoil has been removed by erosion. Some areas of original soils exist as islands and ridges between gullies. Soil properties and qualities vary greatly. Onsite investigation is needed when the use and management of specific sites are planned.

Evard

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main limitation is the Gullied land.
- A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
- The main limitation is the Gullied land.
- Soils in areas that have been gullied and truncated can be reclaimed by land shaping.
- The gullied areas increase the difficulty of establishing vegetation and properly managing pastures.
- The steepness of slope may limit the use of this map unit as hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
- The hazard of erosion may be reduced by land shaping; installing terraces, diversions, and grassed waterways; and establishing herbaceous plants before trees are planted.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- The use of equipment may be limited in gullied areas.
- Land shaping and establishing permanent roads and vegetation help to overcome the equipment limitation.
- Seedlings can be planted by hand in areas where the use of equipment is limited.
- Plant competition from undesirable species may be a problem when establishing a new forest crop in areas of the Evard soil.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- When establishing a new forest crop in areas of Gullied land, the seedling mortality rate may be high because of a shallow rooting depth and low available water capacity and because the original surface layer has been removed by erosion.
- Land shaping, mulching, applying fertilizer, and establishing herbaceous plants reduce the seedling mortality rate.
- The depth to bedrock should be considered carefully when planting sites are selected for seedlings.
- Reinforcement plantings can be made until a desired stand is attained.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for openland and woodland wildlife habitat is good in areas of the Evard soil.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the gullied areas, the depth to bedrock, and the steepness of slope.
• Extensive land shaping and site preparation may be needed.
• The depth to bedrock may be a limitation affecting some building site development.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.
• Onsite investigation is needed when the use and management of specific sites are planned.

Interpretive Group

Land capability classification: Gullied land—8e; Evard—4e

GeD—Gullied land-Evard complex, 15 to 30 percent slopes

Setting

Landscape position: Uplands in the Copper Basin
Size of areas: 5 to 300 acres
Major land use: Idle land in many areas; covered with broom sedge, greenbrier, huckleberry, sourwood, mountain laurel, and sassafras; some areas planted to loblolly pine, sericea lespedeza, weeping lovegrass, and Japanese fleece flower

Composition

Gullied land and similar components: 10 to 85 percent
Evard soil and similar components: 15 to 65 percent
Contrasting components: 15 to 25 percent

Minor Components

Contrasting components:
• Isolated areas of Rock outcrop
• Udorthents along drainageways
Similar components:
• Intermingled areas of Evard soils where the subsoil is exposed
• Isolated areas of Hayesville soils on ridges and pinnacles between gullies

Typical Profile

Gullied land

The soils in areas of Gullied land vary greatly. Their color ranges from yellowish brown to red, and texture is generally loam, clay loam, clay, sandy clay loam, sandy loam, or fine sandy loam. The thickness of the surface layer ranges from 0 to 4 inches, and the thickness of the subsoil ranges from 0 to 20 inches. Depth to bedrock ranges from 0 to about 48 inches. Soft and hard quartzite, gneiss, and mica schist are at the surface in places.

Evard

Surface layer:
0 to 5 inches—dark brown, very friable loam
Subsoil:
5 to 22 inches—yellowish red, friable clay loam
22 to 32 inches—reddish brown, very friable loam
Substratum:
32 to 60 inches—reddish brown, very friable fine sandy loam

Soil Properties and Qualities

Gullied land

The Gullied land consists of truncated soils and areas of U-shaped and V-shaped gullies that formed when the original soils were denuded of vegetation and very severely eroded. It includes some areas of Rock outcrop where most of the subsoil has been removed by erosion. Some areas of original soils exist as islands and ridges between gullies. Soil properties and qualities vary greatly. Onsite investigation is needed when the use and management of specific sites are planned.

Evard

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None

Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns are the hazard of erosion and the gullied areas.
• A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
• The main limitation is the Gullied land.
• Soils in areas that have been gullied and truncated can be reclaimed by land shaping.
• The gullied areas and the steepness of slope increase the difficulty of establishing vegetation and properly managing pastures.
• The steepness of slope is a limitation affecting hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Poorly suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
• The hazard of erosion may be reduced by land shaping; installing terraces, diversions, and grassed waterways; and establishing herbaceous plants before trees are planted.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes.
• The use of equipment may be limited in gullied areas.
• Land shaping and establishing permanent roads and vegetation help to overcome the equipment limitation.
• Seedlings can be planted by hand in areas where the use of equipment is limited.
• Plant competition from undesirable species may be a problem when establishing a new forest crop in areas of the Evard soil.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop in areas of Gullied land, the seedling mortality rate may be high because of a shallow rooting depth and low available water capacity and because the original surface layer has been removed by erosion.
• Land shaping, mulching, applying fertilizer, and establishing herbaceous plants reduce the seedling mortality rate.
• The depth to bedrock should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good in areas of the Evard soil.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited

Management considerations:
- The main limitations are the gullied areas, the depth to bedrock, and the steepness of slope.
- Extensive land shaping and site preparation may be needed.
- The depth to bedrock may be a limitation affecting some building site development.
- The steepness of slope is a limitation affecting most urban development.
- Onsite investigation is needed when the use and management of specific sites are planned.

Interpretive Group

Land capability classification: Gullied land—8e; Evard—6e

GuE—Gullied land, 5 to 35 percent slopes

Setting

Landscape position: Uplands in the Copper Basin
Size of areas: 5 to 120 acres
Major land use: Idle land in most areas; some areas have been planted to loblolly pine, Japanese fleece flower, sericea lespedeza, and weeping lovegrass; native plants include broom sedge, greenbrier, huckleberry, sourwood, and upland oaks

Composition

Gullied land and similar components: 75 to 90 percent
Contrasting components: 10 to 25 percent

Minor Components

Contrasting components:
- Rock outcrop
- Udifluvents along drainageways

Similar components:
- Isolated areas of Evard and Hayesville soils on ridges and pinnacles between gullies

Typical Profile

The soils in these areas vary greatly. Their color ranges from yellowish brown to red, and texture is generally loam, clay loam, clay, sandy clay loam, sandy loam, or fine sandy loam. The thickness of the surface layer ranges from 0 to 4 inches, and the thickness of the subsoil ranges from 0 to 20 inches. Depth to bedrock ranges from 0 to about 48 inches. Soft and hard quartzite, gneiss, and mica schist are at the surface in places.

Soil Properties and Qualities

The Gullied land consists of truncated soils and areas of U-shaped and V-shaped gullies that formed when the original soils were denuded of vegetation and very severely eroded. It includes some areas of Rock outcrop where most of the subsoil has been removed by erosion. Some areas of original soils exist as islands and ridges between gullies. Soil properties and qualities vary greatly. Onsite investigation is needed when the use and management of specific sites are planned.

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concerns are the hazard of erosion and the gullied areas.
- Extensive land shaping, intensive erosion-control measures, and applications of fertilizer are needed if this map unit is used as cropland.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
- The main limitation is the Gullied land.
- Soils in areas that have been gullied and truncated can be reclaimed by land shaping.
- The gullied areas and the steepness of slope increase the difficulty of establishing vegetation and properly managing pastures.
- The steepness of slope is a limitation affecting hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Poorly suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
- The hazard of erosion may be reduced by land shaping; installing terraces, diversions, and grassed waterways; and establishing herbaceous plants before trees are planted.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- The steepness of slope generally is a limitation when large, specialized equipment is used.

• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes.
• The use of equipment may be limited in gullied areas.
• Land shaping and establishing permanent roads and vegetation help to overcome the equipment limitation.
• Seedlings can be planted by hand in areas where the use of equipment is limited.
• Plant competition from undesirable species may be a problem when establishing a new forest crop in areas of the included Evard soils.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop in areas of this map unit, the seedling mortality rate may be high because of a shallow rooting depth and low available water capacity and because the original surface layer has been removed by erosion.
• Land shaping, mulching, applying fertilizer, and establishing herbaceous plants reduce the seedling mortality rate.
• The depth to bedrock should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban Uses

Suitability: Unsuited
Management considerations:
• The main limitations are the gullied areas, the depth to bedrock, and the steepness of slope.
• Onsite investigation is needed when the use and management of specific sites are planned.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 8e

Ha—Hamblen silt loam, occasionally flooded

Setting

Landscape position: Flood plains
Size of areas: 5 to 100 acres
Major land use: Hay, pasture, or cultivated crops

Composition

Hamblen soil and similar components: 80 to 90 percent
Contrasting components: 10 to 20 percent

Minor Components

Contrasting components:
• Waynesboro soils on stream terraces
Similar components:
• Small areas of Sequatchie and Whitwell soils on low terraces

Typical Profile

Surface layer:
0 to 9 inches—dark brown, friable silt loam
Subsoil:
9 to 17 inches—dark yellowish brown, friable silt loam
17 to 28 inches—dark yellowish brown, friable clay loam
28 to 46 inches—yellowish brown, friable clay loam
Substratum:
46 to 60 inches—mottled brown, yellowish brown, and light red, friable clay loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Between depths of 24 and 36 inches
Flooding: Occasional; in winter and early spring
Soil reaction: Strongly acid to neutral
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The main limitations are the flooding and the wetness.
• Some crops may be damaged by flooding in winter and early spring.
• The species that can tolerate the moderate wetness should be selected for planting.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and Hay

Suitability: Well suited

Management considerations:
• The main limitations are the flooding and the wetness.
• Some hay crops may be damaged by flooding in the spring.
• The species that can tolerate the moderate wetness and the flooding should be selected for planting.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• The main management concerns are plant competition and the seedling mortality rate.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the seasonal high water table.
• Reinforcement plantings can be made until a desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the flooding and the wetness, which are difficult to overcome.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 2w

JeD—Jeffrey channery loam, 12 to 35 percent slopes

Setting

Landscape position: Upland ridges and side slopes at the higher elevations
Size of areas: 25 to 200 acres
Major land use: Woodland

Composition

Jeffrey soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Tusquitee soils in coves and on the lower side slopes
Similar components:
• Scattered areas of Ditney, Junaluska, and Tsali soils in landscape positions similar to those of the Jeffrey soil

Typical Profile

Surface layer:
0 to 8 inches—very dark brown, very friable channery loam
8 to 11 inches—dark brown, very friable channery loam
Subsoil:
11 to 22 inches—yellowish brown, friable cobbly loam
Substratum:
22 to 28 inches—yellowish brown, friable very cobbly loam
Bedrock:
28 inches—hard arkosic sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concerns are the hazard of erosion, the moderate available water capacity, and the depth to bedrock.
- A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
- The main limitations are the steepness of slope and the moderate available water capacity.
- The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the equipment limitation and plant competition.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cutting or by applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for woodland wildlife habitat is good.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
- The main limitations affecting urban uses are the depth to bedrock and the steepness of slope.
- The depth to bedrock is a limitation affecting some building site development.
- The steepness of slope is a limitation affecting most urban development.
- Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

JeF—Jeffrey channery loam, 35 to 65 percent slopes

Setting

Landscape position: Upland side slopes at the higher elevations
Size of areas: 25 to 250 acres
Major land use: Woodland

Composition

Jeffrey soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
- Tusquitee soils in coves and on the lower side slopes

Similar components:
- Scattered areas of Ditney, Junaluska, and Tsali soils in landscape positions similar to those of the Jeffrey soil

Typical Profile

Surface layer:
0 to 8 inches—very dark brown, very friable channery loam
8 to 11 inches—dark brown, very friable channery loam

Subsoil:
11 to 22 inches—yellowish brown, friable cobbly loam
Substratum:
22 to 28 inches—yellowish brown, friable very cobbly loam
Bedrock:
28 inches—hard arkosic sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns are the hazard of erosion and the depth to bedrock.
• A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the moderate available water capacity.
• Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited
Management considerations:
• The main limitations are the depth to bedrock and the steepness of slope.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 7e

JkD—Junaluska fine sandy loam, 15 to 35 percent slopes

Setting

Landscape position: Upland ridges, shoulder slopes, and side slopes in the lower Southern Blue Ridge Mountains
Size of areas: 20 to 500 acres
Major land use: Woodland

Composition

Junaluska soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
- Isolated areas of Rock outcrop
- Keener soils in coves and along drainageways
- A few areas of Arkaqua and Suches soils on narrow flood plains

Similar components:
- Intermingled areas of soils that have a higher content of rock fragments than the Junaluska soil

Typical Profile

Surface layer:
0 to 2 inches—brown, very friable fine sandy loam
Subsurface layer:
2 to 11 inches—strong brown, very friable fine sandy loam
Subsoil:
11 to 21 inches—yellowish red, friable sandy clay loam
Substratum:
21 to 26 inches—yellowish red and red layers of soft rock and sandy clay loam soil material
Bedrock:
26 to 31 inches—multicolored, weathered and fractured, soft metasandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concerns are the hazard of erosion and the low available water capacity.
- A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
- The main limitations are the steepness of slope and the low available water capacity.
- The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, plant competition, the seedling mortality rate, and the hazard of windthrow.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.

• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of a moderately deep root zone and the low available water capacity.
• Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the moderately deep root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is fair.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the depth to bedrock and the steepness of slope.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

JkF—Junaluska fine sandy loam, 35 to 65 percent slopes

Setting

Landscape position: Upland ridges, shoulder slopes, and side slopes in the lower Southern Blue Ridge Mountains
Size of areas: 20 to 900 acres
Major land use: Woodland

Composition

Junaluska soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Isolated areas of Rock outcrop
• Keener soils in coves and along drainageways
• A few areas of Arkaqua and Suches soils on narrow flood plains
Similar components:
• Intermingled areas of soils that have a higher content of rock fragments than the Junaluska soil

Typical Profile

Surface layer:
0 to 2 inches—brown, very friable fine sandy loam
Subsurface layer:
2 to 11 inches—strong brown, very friable fine sandy loam
Subsoil:
11 to 21 inches—yellowish red, friable sandy clay loam
Substratum:
21 to 26 inches—yellowish red and red layers of soft rock and sandy clay loam soil material
Bedrock:
26 to 31 inches—multicolored, weathered and fractured, soft metasandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns are the hazard of erosion and the low available water capacity.
• A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited

Management considerations:
• The main limitations are the steepness of slope and the low available water capacity.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, the seedling mortality rate, and the hazard of windthrow.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of a moderately deep root zone and the low available water capacity.
• Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the moderately deep root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is fair.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited
Management considerations:
• The main limitations are the depth to bedrock and the steepness of slope.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 7e

JnC—Junaluska-Brasstown complex, 5 to 15 percent slopes

Setting

Landscape position: Upland ridges, shoulder slopes, and side slopes in the lower Southern Blue Ridge Mountains
Size of areas: 20 to 500 acres
Major land use: Woodland

Composition

Junaluska soil and similar components: 45 to 65 percent
Brasstown soil and similar components: 20 to 55 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Isolated areas of Rock outcrop
• Keener soils in coves and along drainageways
• A few areas of Arkaqua and Suches soils on narrow flood plains
Similar components:
• Intermingled areas of soils that have a higher content of rock fragments than the Junaluska and Brasstown soils

Typical Profile

Junaluska

Surface layer:
0 to 2 inches—brown, very friable fine sandy loam
Subsurface layer:
2 to 11 inches—strong brown, very friable fine sandy loam
Subsoil:
11 to 21 inches—yellowish red, friable sandy clay loam
Substratum:
21 to 26 inches—yellowish red and red layers of soft rock and sandy clay loam soil material
Bedrock:
26 to 31 inches—multicolored, weathered and fractured, soft metasandstone

Brasstown

Surface layer:
0 to 6 inches— dark brown, friable channery fine sandy loam
Subsoil:
6 to 10 inches—yellowish red, very friable channery sandy clay loam
10 to 29 inches—red, friable channery sandy clay loam
29 to 37 inches—red, very friable channery fine sandy loam
Substratum:
37 to 46 inches—multicolored, friable channery very fine sandy loam
Bedrock:
46 to 60 inches—multicolored, weathered and fractured metasandstone and phyllite

Soil Properties and Qualities

Junaluska

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Brasstown

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid
Depth to bedrock: 40 to 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
- The main management concerns are the hazard of erosion and the low available water capacity in areas of the Junaluska soil.
- Erosion is a severe hazard if a conventional tillage system is used.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- A crop rotation is a necessary management practice in most areas.
- Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Suited
Management considerations:
- The main limitations are the steepness of slope and the low available water capacity.
- The steepness of slope increases the difficulty of properly managing pastures and limits the use of these soils as hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are plant competition and the seedling mortality rate in areas of the Junaluska and Brasstown soils and a hazard of windthrow in areas of the Junaluska soil.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- When establishing a new forest crop, the seedling mortality rate may be high because of a moderately

deep root zone and the low available water capacity in areas of the Junaluska soil.
• Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in areas of the Junaluska soil because of the moderately deep root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is fair in areas of the Junaluska soil and good in areas of the Brasstown soil.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitations are the steepness of slope in areas of the Junaluska and Brasstown soils and the depth to bedrock in areas of the Junaluska soil.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

JnD—Junaluska-Brasstown complex, 15 to 35 percent slopes

Setting

Landscape position: Upland ridges, shoulder slopes, and side slopes in the lower Southern Blue Ridge Mountains
Size of areas: 20 to 500 acres
Major land use: Woodland

Composition

Junaluska soil and similar components: 45 to 65 percent
Brasstown soil and similar components: 20 to 55 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Isolated areas of Rock outcrop
• Keener soils in coves and along drainageways
• A few areas of Arkaqua and Suches soils on narrow flood plains
Similar components:
• Intermingled areas of soils that have a higher content of rock fragments than the Junaluska and Brasstown soils

Typical Profile

Junaluska

Surface layer:
0 to 2 inches—brown, very friable fine sandy loam
Subsurface layer:
2 to 11 inches—strong brown, very friable fine sandy loam
Subsoil:
11 to 21 inches—yellowish red, friable sandy clay loam
Substratum:
21 to 26 inches—yellowish red and red layers of soft rock and sandy clay loam soil material
Bedrock:
26 to 31 inches—multicolored, weathered and fractured, soft metasandstone

Brasstown

Surface layer:
0 to 6 inches— dark brown, friable channery fine sandy loam
Subsoil:
6 to 10 inches—yellowish red, very friable channery sandy clay loam
10 to 29 inches—red, friable channery sandy clay loam
29 to 37 inches—red, very friable channery fine sandy loam
Substratum:
37 to 46 inches—multicolored, friable channery very fine sandy loam
Bedrock:
46 to 60 inches—multicolored, weathered and fractured metasandstone and phyllite

Soil Properties and Qualities

Junaluska

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Brasstown

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid
Depth to bedrock: 40 to 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concerns are the hazard of erosion in areas of the Junaluska and Brasstown soils and the low available water capacity in areas of the Junaluska soil.
- A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
- The main limitations are the low available water capacity in areas of the Junaluska soil and the steepness of slope in areas of the Junaluska and Brasstown soils.
- The steepness of slope increases the difficulty of properly managing pastures and limits the use of these soils as hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of windthrow in areas of the Junaluska soil and the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate in areas of the Junaluska and Brasstown soils.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cutting or by applying herbicides.
- When establishing a new forest crop, the seedling mortality rate may be high in areas of the Junaluska soil because of a moderately deep root zone and the low available water capacity.
- Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
- Reinforcement plantings can be made until a desired stand is attained.
- Windthrow may be a hazard in areas of the Junaluska soil because of the moderately deep root zone.
- The windthrow hazard can be reduced by applying a carefully regulated thinning program.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
- The potential for woodland wildlife habitat is fair in areas of the Junaluska soil and good in areas of the Brasstown soil.

• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the depth to bedrock in areas of the Junaluska soil and the steepness of slope in areas of the Junaluska and Brasstown soils.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

JtF—Junaluska-Citico complex, 35 to 65 percent slopes

Setting

Landscape position: Upland ridges and side slopes in the Southern Blue Ridge Mountains
Size of areas: 25 to 300 acres
Major land use: Woodland

Composition

Junaluska soil and similar components: 45 to 65 percent
Citico soil and similar components: 20 to 40 percent
Contrasting components: 15 to 25 percent

Minor Components

Contrasting components:
• Tusquitee soils in coves
• Isolated areas of Rock outcrop
Similar components:
• Soils that have a higher content of rock fragments throughout than the Junaluska and Citico soils
• Intermingled areas of Keener soils

Typical Profile

Junaluska

Surface layer:
0 to 2 inches—brown, very friable fine sandy loam
Subsurface layer:
2 to 11 inches—strong brown, very friable fine sandy loam
Subsoil:
11 to 21 inches—yellowish red, friable sandy clay loam
Substratum:
21 to 26 inches—yellowish red and red layers of soft rock and sandy clay loam soil material
Bedrock:
26 to 31 inches—multicolored, weathered and fractured, soft metasandstone

Citico

Surface layer:
0 to 4 inches—very dark grayish brown, very friable channery silt loam
Subsurface layer:
4 to 12 inches—dark yellowish brown, friable channery silt loam
Subsoil:
12 to 31 inches—dark yellowish brown, friable very channery silt loam
Substratum:
31 to 45 inches—yellowish brown, friable very flaggy silt loam
Bedrock:
45 to 50 inches—hard phyllite

Soil Properties and Qualities

Junaluska

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Citico

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid
Depth to bedrock: 40 to 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concern is the hazard of erosion.
- The depth to bedrock and the low available water capacity are additional limitations in areas of the Junaluska soil.
- A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
- The main limitation is the steepness of slope.
- The low available water capacity is an additional limitation in areas of the Junaluska soil.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, plant competition, the seedling mortality rate, and the hazard of windthrow.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cutting or by applying herbicides.
- When establishing a new forest crop, the seedling mortality rate may be high because of a moderately deep root zone and the low available water capacity.
- Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
- Reinforcement plantings can be made until a desired stand is attained.
- Windthrow may be a hazard in areas of the Junaluska soil because of the moderately deep root zone.
- The windthrow hazard can be reduced by applying a carefully regulated thinning program.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
- The potential for woodland wildlife habitat is fair in areas of the Junaluska soil and good in areas of the Citico soil.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited
Management considerations:
- The main limitations are the depth to bedrock and the steepness of slope.
- Better suited sites should be considered.

Interpretive Group

Land capability classification: 7e

JuF—Junaluska-Tsali complex, 35 to 65 percent slopes

Setting

Landscape position: Narrow ridges and side slopes in the Southern Blue Ridge Mountains
Size of areas: 10 to 500 acres
Major land use: Woodland

Composition

Junaluska soil and similar components: 40 to 60 percent
Tsali soil and similar components: 20 to 40 percent

Contrasting components: 15 to 25 percent

Minor Components

Contrasting components:
- Intermingled areas of Evard and Hayesville soils
- Tusquitee soils in coves
- Isolated areas of Rock outcrop

Similar components:
- Soils that have a higher content of rock fragments throughout than the Junaluska and Tsali soils

Typical Profile

Junaluska

Surface layer:
0 to 2 inches—brown, very friable fine sandy loam
Subsurface layer:
2 to 11 inches—strong brown, very friable fine sandy loam
Subsoil:
11 to 21 inches—yellowish red, friable sandy clay loam
Substratum:
21 to 26 inches—yellowish red and red layers of soft rock and sandy clay loam soil material
Bedrock:
26 to 31 inches—multicolored, weathered and fractured, soft metasandstone

Tsali

Surface layer:
0 to 8 inches—yellowish brown, very friable channery loam
Subsoil:
8 to 13 inches—yellowish red, friable channery loam
13 to 18 inches—yellowish red, friable channery clay loam
Bedrock:
18 to 60 inches—multicolored, weathered and fractured, soft metasandstone

Soil Properties and Qualities

Junaluska

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Tsali

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid
Depth to bedrock: 10 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concerns are the hazard of erosion, the depth to bedrock, and the low or very low available water capacity.
- A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
- The main limitations are the low or very low available water capacity and the steepness of slope.

Woodland

Suitability: Poorly suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, plant competition, the seedling mortality rate, and the hazard of windthrow.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.

• Plant competition from undesirable species may be a problem when establishing a new forest crop in areas of the Junaluska soil.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of a moderately deep root zone and the low available water capacity.
• Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the moderately deep or shallow root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is fair in areas of the Junaluska soil and poor in areas of the Tsali soil.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited
Management considerations:
• The main limitations are the depth to bedrock and the steepness of slope.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 7e

KeC—Keener loam, 3 to 12 percent slopes

Setting

Landscape position: Upland footslopes, toeslopes, and the lower side slopes
Size of areas: 10 to 100 acres
Major land use: Woodland

Composition

Keener soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Scattered areas of Cataska and Unicoi soils on the adjacent side slopes
• Small areas of Keener soils that have steeper slopes
• Isolated areas of Rock outcrop
Similar components:
• Soils that have a higher content of rock fragments throughout than the Keener soil
• Soils that have redder colors and more clay in the subsoil than the Keener soil; on convex ridges

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown, very friable loam
Subsurface layer:
4 to 9 inches—yellowish brown, very friable loam
Subsoil:
9 to 17 inches—yellowish brown, friable loam
17 to 27 inches—yellowish brown, friable clay loam
27 to 40 inches—strong brown, friable clay loam
40 to 51 inches—yellowish brown, friable loam
Substratum:
51 to 65 inches—yellowish red, very friable loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited

Management considerations:
• The hazard of erosion is the main management concern.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitations are the moderate permeability and the steepness of slope.
• The moderate permeability in the subsoil is a limitation affecting some sanitary facilities and building site development.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

KeD—Keener loam, 12 to 25 percent slopes

Setting

Landscape position: Upland footslopes, toeslopes, and the lower side slopes
Size of areas: 10 to 300 acres
Major land use: Woodland

Composition

Keener soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Scattered areas of Cataska and Unicoi soils on the adjacent side slopes
• Small areas of Keener soils that have steeper slopes
• Isolated areas of Rock outcrop
Similar components:
• Soils that have a higher content of rock fragments throughout than the Keener soil
• Soils that have redder colors and more clay in the subsoil than the Keener soil; on convex knobs

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown, very friable loam
Subsurface layer:
4 to 9 inches—yellowish brown, very friable loam
Subsoil:
9 to 17 inches—yellowish brown, friable loam
17 to 27 inches—yellowish brown, friable clay loam
27 to 40 inches—strong brown, friable clay loam

40 to 51 inches—yellowish brown, friable loam
Substratum:
51 to 65 inches—yellowish red, very friable loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The hazard of erosion is the main management concern.
• Erosion is a severe hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A long-term crop rotation is a necessary management practice in most areas.
• Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Suited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitations are the moderate permeability and the steepness of slope.
• The moderate permeability in the subsoil is a limitation affecting some sanitary facilities and building site development.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

LeB—Leadvale silt loam, 2 to 5 percent slopes, rarely flooded

Setting

Landscape position: On toeslopes, footslopes, and low terraces and along narrow drainageways
Size of areas: 10 to 50 acres
Major land use: Pasture, hay, or cultivated crops

Composition

Leadvale soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
- Isolated areas of Apison and Needmore soils
- Hamblen soils near streams and drainageways

Similar components:
- Scattered areas of soils that are well drained
- Soils that have more clay in the subsoil than the Leadvale soil

Typical Profile

Surface layer:
0 to 9 inches—brown, very friable silt loam
Subsoil:
9 to 14 inches—yellowish brown, very friable silt loam
14 to 22 inches—brownish yellow, friable silty clay loam
22 to 31 inches—mottled brownish, yellowish, and grayish, firm and brittle silty clay loam
31 to 60 inches—mottled light gray and light yellowish brown, firm silty clay loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow or slow
Available water capacity: Moderate
Perched water table: Between depths of 24 and 36 inches
Flooding: Rare; in winter and early spring
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
- The main limitations are the hazard of erosion, a moderately deep root zone, and the flooding.
- Some crops may be damaged by flooding in winter and early spring.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
- Few limitations affect the management of pasture and hayland.
- Some hay crops may be damaged by flooding in the spring.
- The species that can tolerate the moderate wetness and the flooding should be selected for planting.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
- Few limitations affect forest management.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cutting or by applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for openland wildlife habitat is good.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.

• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the flooding, the wetness, the moderately slow or slow permeability, and low strength.
• The flooding and the wetness are difficult to overcome.
• The moderately slow or slow permeability in the subsoil is a limitation affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 2e

LkC—Lostcove-Keener complex, 3 to 12 percent slopes, stony

Setting

Landscape position: Upland footslopes, toeslopes, and the lower side slopes
Size of areas: 10 to 100 acres
Major land use: Woodland

Composition

Lostcove soil and similar components: 50 to 70 percent
Keener soil and similar components: 20 to 40 percent
Contrasting components: 10 to 20 percent

Minor Components

Contrasting components:
• Scattered areas of Cataska and Unicoi soils on the adjacent side slopes
• Small areas of Lostcove and Keener soils that have steeper slopes
• Isolated areas of Rock outcrop
Similar components:
• Soils that have a lower content of rock fragments throughout than the Lostcove and Keener soils
• Soils that have redder colors and more clay in the subsoil than the Lostcove and Keener soils; on convex ridges

Typical Profile

Lostcove

Surface layer:
0 to 5 inches—yellowish brown, very friable gravelly loam
Subsoil:
5 to 19 inches—yellowish brown, friable very cobbly clay loam
19 to 50 inches—yellowish brown, friable very cobbly clay loam
50 to 76 inches—yellowish brown, friable very cobbly clay

Keener

Surface layer:
0 to 1 inch—very dark grayish brown, friable cobbly loam
Subsurface layer:
1 to 13 inches—brown and yellowish brown, friable cobbly loam
Subsoil:
13 to 37 inches—strong brown, friable cobbly clay loam
37 to 56 inches—strong brown, friable very cobbly clay loam
56 to 64 inches—strong brown, friable cobbly sandy loam
Substratum:
64 to 70 inches—strong brown, friable very cobbly sandy loam

Soil Properties and Qualities

Lostcove

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: Between depths of 60 and 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Keener

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid in unlimed areas

Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns are the cobbly surface layer of the Keener soil and the moderate hazard of erosion in areas of the Lostcove and Keener soils.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
• The main limitation is the cobbly surface layer of the Keener soil.
• The cobbles in the surface layer of the Keener soil increase the difficulty of properly managing pastures and may limit the use of these soils as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, the cobbles and stones in the soils, and the steepness of slope.
• The moderate permeability in the subsoil is a limitation affecting some sanitary facilities and building site development.
• The cobbles and stones may cause problems in areas used for lawns and when the soils are landscaped or excavated.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: Lostcove—7s; Keener—3s

LkD—Lostcove-Keener complex, 12 to 25 percent slopes, very stony

Setting

Landscape position: Upland footslopes, toeslopes, and the lower side slopes
Size of areas: 20 to 400 acres
Major land use: Woodland

Composition

Lostcove soil and similar components: 50 to 70 percent
Keener soil and similar components: 20 to 40 percent
Contrasting components: 10 to 20 percent

Minor Components

Contrasting components:
• Scattered areas of Cataska and Unicoi soils on the adjacent side slopes
• Small areas of Lostcove and Keener soils that have steeper slopes
• Isolated areas of Rock outcrop
Similar components:
• Soils that have a higher content of rock fragments throughout than the Lostcove soil
• Soils that have redder colors and more clay in the subsoil than the Lostcove and Keener soils; on convex ridges

Typical Profile

Lostcove

Surface layer:
0 to 5 inches—yellowish brown, very friable gravelly loam
Subsoil:
5 to 19 inches—yellowish brown, friable very cobbly clay loam
19 to 50 inches—yellowish brown, friable very cobbly clay loam
50 to 76 inches—yellowish brown, friable very cobbly clay

Keener

Surface layer:
0 to 1 inch—very dark grayish brown, friable cobbly loam
Subsurface layer:
1 to 13 inches—brown and yellowish brown, friable cobbly loam
Subsoil:
13 to 37 inches—strong brown, friable cobbly clay loam
37 to 56 inches—strong brown, friable very cobbly clay loam
56 to 64 inches—strong brown, friable cobbly sandy loam
Substratum:
64 to 70 inches—strong brown, friable very cobbly sandy loam

Soil Properties and Qualities

Lostcove

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: Between depths of 60 and 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Keener

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main limitations are the cobbly surface layer of the Keener soil and the severe hazard of erosion in areas of the Lostcove and Keener soils.
- A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
- The main limitations are the cobbly surface layer of the Keener soil and the steepness of slope in areas of the Lostcove and Keener soils.
- The steepness of slope and the cobbles in the surface layer increase the difficulty of properly managing pastures and limit the use of these soils as hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.

• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the cobbly surface layer of the Keener soil.
• The content of cobbles in the surface layer of the Keener soil should be taken into consideration when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the moderate permeability, the cobbles and stones in the soils, and the steepness of slope.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: Lostcove—7s; Keener—4s

LkF—Lostcove-Keener complex, 25 to 65 percent slopes, very stony

Setting

Landscape position: Upland footslopes, toeslopes, and the lower side slopes
Size of areas: 15 to 300 acres
Major land use: Woodland

Composition

Lostcove soil and similar components: 50 to 70 percent
Keener soil and similar components: 20 to 40 percent
Contrasting components: 10 to 20 percent

Minor Components

Contrasting components:
• Scattered areas of Cataska and Unicoi soils on the adjacent side slopes
• Small areas of Lostcove and Keener soils that have steeper slopes
• Isolated areas of Rock outcrop
Similar components:
• Soils that have a higher content of rock fragments throughout than the Lostcove soil
• Soils that have redder colors and more clay in the subsoil than the Lostcove and Keener soils; on convex ridges

Typical Profile

Lostcove

Surface layer:
0 to 5 inches—yellowish brown, very friable gravelly loam
Subsoil:
5 to 19 inches—yellowish brown, friable very cobbly clay loam
19 to 50 inches—yellowish brown, friable very cobbly clay loam
50 to 76 inches—yellowish brown, friable very cobbly clay

Keener

Surface layer:
0 to 1 inch—very dark grayish brown, friable cobbly loam
Subsurface layer:
1 to 13 inches—brown and yellowish brown, friable cobbly loam
Subsoil:
13 to 37 inches—strong brown, friable cobbly clay loam
37 to 56 inches—strong brown, friable very cobbly clay loam
56 to 64 inches—strong brown, friable cobbly sandy loam
Substratum:
64 to 70 inches—strong brown, friable very cobbly sandy loam

Soil Properties and Qualities

Lostcove

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Seasonal high water table: Between depths of 60 and 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Keener

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concerns are the hazard of erosion and the cobbly surface layer.
- A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
- The main limitations are the steepness of slope and the cobbly surface layer.
- A better suited site should be selected.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cutting or by applying herbicides.
- When establishing a new forest crop, the seedling mortality rate may be high because of the cobbly surface layer of the Keener soil.
- The content of cobbles in the surface layer of the Keener soil should be taken into consideration when planting sites are selected for seedlings.
- Reinforcement plantings can be made until a desired stand is attained.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for woodland wildlife habitat is good.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited
Management considerations:
- The main limitations are the moderate permeability, the cobbles and stones in the soils, and the steepness of slope.
- Better suited sites should be considered.

Interpretive Group

Land capability classification: 7s

McC—McCamy loam, 5 to 15 percent slopes

Setting

Landscape position: Ridgetops of Starr and Chilhowee Mountains, in the Southern Blue Ridge Mountains
Size of areas: 10 to 100 acres
Major land use: Woodland

Composition

McCamy soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
- Intermingled areas of Cataska and Unicoi soils
- Keener soils near drainageways

Similar components:
- Intermingled areas of Junaluska soils

Typical Profile

Surface layer:
0 to 2 inches—dark gray, very friable loam
Subsurface layer:
2 to 7 inches—yellowish brown, very friable loam
Subsoil:
7 to 26 inches—yellowish brown, friable clay loam
Bedrock:
26 to 38 inches—soft, brown and yellow arkosic sandstone
38 inches—hard arkosic sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of erosion, the depth to bedrock, and the low available water capacity.
- Erosion is a moderate hazard if a conventional tillage system is used.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- A crop rotation that includes grasses and legumes is a necessary management practice.
- Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Suited
Management considerations:
- The main limitation is the low available water capacity.
- The steepness of slope can be a limitation affecting hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
- The main management concerns are the equipment limitation and plant competition.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes are generally short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for woodland wildlife habitat is good.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.

• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the depth to bedrock and the steepness of slope.
• The depth to bedrock is a limitation affecting some building site development.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

McD—McCamy loam, 15 to 35 percent slopes

Setting

Landscape position: Ridgetops of Starr and Chilhowee Mountains, in the Southern Blue Ridge Mountains
Size of areas: 30 to 100 acres
Major land use: Woodland

Composition

McCamy soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Intermingled areas of Cataska and Unicoi soils
• Keener soils near drainageways
Similar components:
• Intermingled areas of Junaluska soils

Typical Profile

Surface layer:
0 to 2 inches—dark gray, very friable loam
Subsurface layer:
2 to 7 inches—yellowish brown, very friable loam
Subsoil:
7 to 26 inches—yellowish brown, friable clay loam
Bedrock:
26 to 38 inches—soft, brown and yellow arkosic sandstone
38 to 42 inches—hard arkosic sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns are the hazard of erosion, the depth to bedrock, and the low available water capacity.
• A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
• The main limitation is the low available water capacity.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes are generally short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have

smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the low available water capacity.
• Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the depth to bedrock and the steepness of slope.
• The depth to bedrock is a limitation affecting some building site development.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

MnC—Minvale gravelly silt loam, 5 to 12 percent slopes

Setting

Landscape position: Upland footslopes and side slopes
Size of areas: 5 to 120 acres
Major land use: Woodland, hay, or pasture

Composition

Minvale soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Contrasting components:
• Hamblen and Toccoa soils along streams and drainageways
• Small areas of Apison and Armuchee soils
Similar components:
• Intermingled areas of Collegedale and Waynesboro soils

Typical Profile

Surface layer:
0 to 3 inches—dark grayish brown, very friable gravelly silt loam
Subsurface layer:
3 to 13 inches—light yellowish brown, friable gravelly silt loam
Subsoil:
13 to 21 inches—yellowish brown, friable gravelly silty clay loam
21 to 28 inches—strong brown, firm gravelly silty clay loam
28 to 39 inches—mottled yellowish red, strong brown, and yellowish brown, firm gravelly clay
39 to 68 inches—mottled yellowish red, strong brown, yellowish brown, and pale brown, firm very gravelly clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid unless limed
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
- The hazard of erosion is the main management concern.
- Erosion is a moderate hazard if a conventional tillage system is used.
- The gravelly surface layer may hinder tillage.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- A crop rotation that includes grasses and legumes is a necessary management practice.
- Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
- Few limitations affect the management of pasture and hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
- Few limitations affect forest management.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for openland and woodland wildlife habitat is good.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
- Trees and brush along streams provide benefits to wildlife as well as erosion control.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
- Few limitations affect urban development.
- The steepness of slope is a limitation affecting most urban development.
- The gravelly surface layer may be a problem in areas used for lawns and when the soil is landscaped.
- Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

MnD—Minvale gravelly silt loam, 12 to 25 percent slopes

Setting

Landscape position: Upland footslopes and side slopes
Size of areas: 5 to 65 acres
Major land use: Woodland, hay, or pasture

Composition

Minvale soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Contrasting components:
- Hamblen and Toccoa soils along streams and drainageways
- Small areas of Apison and Armuchee soils

Similar components:
- Intermingled areas of Collegedale and Waynesboro soils

Typical Profile

Surface layer:
0 to 3 inches—dark grayish brown, very friable gravelly silt loam
Subsurface layer:
3 to 13 inches—light yellowish brown, friable gravelly silt loam
Subsoil:
13 to 21 inches—yellowish brown, friable gravelly silty clay loam
21 to 28 inches—strong brown, firm gravelly silty clay loam
28 to 39 inches—mottled yellowish red, strong brown, and yellowish brown, firm gravelly clay
39 to 68 inches—mottled yellowish red, strong brown, yellowish brown, and pale brown, firm very gravelly clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid unless limed
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The hazard of erosion is the main management concern.
• Erosion is a severe hazard if a conventional tillage system is used.
• The gravelly surface layer may hinder tillage.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Suited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• When establishing a new forest crop, the seedling mortality rate may be high because of the gravelly surface layer.
• Aspect and the content of gravel in the surface layer should be taken into consideration when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is fair, and the potential for woodland wildlife habitat is good.

• Habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitation affecting urban uses is the steepness of slope.
• The gravelly surface layer may be a problem in areas used for lawns and when the soil is landscaped.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

NeC—Needmore silt loam, 5 to 12 percent slopes

Setting

Landscape position: Upland ridges and side slopes
Size of areas: 8 to 200 acres
Major land use: Woodland, pasture, or hay

Composition

Needmore soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Contrasting components:
• Leadvale soils along drainageways
• Steep areas of Wallen soils
Similar components:
• Intermingled areas of Apison and Armuchee soils
• Eroded and severely eroded soils

Typical Profile

Surface layer:
0 to 4 inches—brown, very friable silt loam
Subsurface layer:
4 to 7 inches—yellowish brown, friable silt loam
Subsoil:
7 to 16 inches—yellowish brown, friable silty clay
16 to 22 inches—strong brown, firm clay
Substratum:
22 to 29 inches—mottled yellowish brown and grayish brown, firm very channery silty clay
Bedrock:
29 to 34 inches—soft shale bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid or moderately acid in unlimed areas
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
• The main management concerns are the hazard of erosion, the depth to bedrock, and the moderate available water capacity.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Terraces, diversions, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Suited
Management considerations:
• The moderate available water capacity results in lower yields during periods of low precipitation.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.

• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the moderately slow permeability, the clayey subsoil, low strength, the shrink-swell potential, the depth to bedrock, and the steepness of slope.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

NeD—Needmore silt loam, 12 to 25 percent slopes

Setting

Landscape position: Upland ridges and side slopes
Size of areas: 10 to 200 acres
Major land use: Woodland, pasture, or hay

Composition

Needmore soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Contrasting components:
• Leadvale soils along drainageways
• Steep areas of Wallen soils
Similar components:
• Intermingled areas of Apison and Armuchee soils
• Eroded and severely eroded soils

Typical Profile

Surface layer:
0 to 4 inches—brown, very friable silt loam
Subsurface layer:
4 to 7 inches—yellowish brown, friable silt loam
Subsoil:
7 to 16 inches—yellowish brown, friable silty clay
16 to 22 inches—strong brown, firm clay
Substratum:
22 to 29 inches—mottled yellowish brown and grayish brown, firm very channery silty clay
Bedrock:
29 to 34 inches—soft shale bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid or moderately acid in unlimed areas
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited

Management considerations:
• The main management concerns are the hazard of erosion, the depth to bedrock, and the moderate available water capacity.
• A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
• The main limitations are the steepness of slope and the moderate available water capacity.
• The steepness of slope increases the difficulty of properly managing pastures and limits the use of this soil as hayland.
• The moderate available water capacity results in lower yields during periods of low precipitation.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes are generally short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland and woodland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the moderately slow permeability, the clayey subsoil, low strength, the shrink-swell potential, the depth to bedrock, and the steepness of slope.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

SeB—Sequatchie silt loam, 2 to 5 percent slopes, rarely flooded

Setting

Landscape position: Low terraces
Size of areas: 20 to 250 acres
Major land use: Cultivated crops, hay, or pasture (fig. 5)

Composition

Sequatchie soil and similar components: 80 to 90 percent
Contrasting components: 10 to 20 percent

Figure 5.—An area of Sequatchie silt loam, 2 to 5 percent slopes, rarely flooded, which can produce high yields of corn. The area of Waynesboro soils in the background is an excellent site for hay and pasture.

Minor Components

Contrasting components:
• Scattered areas of Waynesboro soils that are not subject to flooding; at the higher elevations
Similar components:
• Toccoa and Whitwell soils that are subject to occasional flooding; on the adjacent flood plains

Typical Profile

Surface layer:
0 to 9 inches—dark brown, friable silt loam
Subsoil:
9 to 27 inches—brown, friable clay loam
27 to 41 inches—brown, friable loam
Substratum:
41 to 54 inches—dark yellowish brown, friable gravelly loam
54 to 68 inches—yellowish brown, very friable fine sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 60 inches
Flooding: Rare; in winter and early spring
Soil reaction: Very strongly acid or strongly acid unless limed
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Well suited
Management considerations:
• Few limitations affect the management of cropland.
• Some crops may be damaged by the rare flooding in winter and early spring.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited

Management considerations:
• Few limitations affect the management of pasture and hayland.
• Some hay crops may be damaged by the rare flooding in spring.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitation affecting urban uses is the flooding, which is difficult to overcome.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 2e

Sm—Slickens

Setting

Landscape position: Uplands and drainageways in the Copper Basin
Size of areas: 5 to 40 acres
Major land use: Idle land; most areas incapable of supporting vegetation

Composition

Slickens and similar components: 80 to 85 percent
Contrasting components: 15 to 20 percent

Minor Components

Contrasting components:
• Isolated areas of Evard and Hayesville soils
• A few areas of Gullied land
Similar components:
• Piles of rock and overburden

Typical Profile

The soil material in this map unit varies greatly. In most areas the unit consists of accumulations or piles of waste rock or areas of fine textured materials where minerals have been extracted from finely ground or smelted ore.

Soil Properties and Qualities

The soil properties and qualities vary greatly. Onsite investigation is needed when the use and management of specific sites are planned.

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• Extensive reclamation, land shaping, and intensive erosion-control measures are needed if this map unit is to be used as cropland.
• A better suited site should be selected.

Pasture and Hay

Suitability: Poorly suited
Management considerations:
• Extensive reclamation, land shaping, and intensive erosion-control measures are needed if this map unit is to be used for hay and pasture.

Woodland

Suitability: Poorly suited
Management considerations:
• Extensive reclamation, land shaping, and intensive

erosion-control measures are needed if this map unit is to be used as woodland.

Urban Uses

Suitability: Unsuited
Management considerations:
• Extensive land shaping, site preparation, and intensive erosion-control measures are needed if this map unit is to be used as a site for urban development.
• Most areas are subject to differential settling, slippage, and other hazards associated with recently deposited materials.

Interpretive Group

Land capability classification: 8e

Su—Suches loam, occasionally flooded

Setting

Landscape position: Flood plains
Size of areas: 10 to 100 acres
Major land use: Pasture, hay, or row crops

Composition

Suches soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Tate soils on footslopes and stream terraces
• Soils that are not flooded or are subject to rare flooding
Similar components:
• Isolated areas of Arkaqua soils in depressions

Typical Profile

Surface layer:
0 to 10 inches—dark brown, friable loam
Subsoil:
10 to 23 inches—yellowish brown, friable loam
23 to 31 inches—yellowish brown, friable loam that has grayish brown mottles
31 to 41 inches—light brownish gray, friable loam
Substratum:
41 to 60 inches—light brownish gray, friable stratified loam and fine sandy loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Between depths of 30 and 48 inches
Flooding: Occasional; in winter and early spring
Soil reaction: Very strongly acid to moderately acid unless limed
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• Some crops may be damaged by flooding in winter and early spring.
• The species that can tolerate the moderate wetness should be selected for planting.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Some hay crops may be damaged by flooding in the spring.
• The species that can tolerate the moderate wetness and the flooding should be selected for planting.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.

• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations are the flooding and the wetness, which are difficult to overcome.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 2w

TaE—Talbott-Rock outcrop complex, 12 to 50 percent slopes

Setting

Landscape position: Upland ridges and side slopes along the base of Sand Mountain
Size of areas: 10 to 60 acres
Major land use: Woodland

Composition

Talbott soil and similar components: 50 to 70 percent
Rock outcrop and similar components: 10 to 25 percent
Contrasting components: 15 to 20 percent

Minor Components

Contrasting components:
• Intermingled areas of Collegedale, Decatur, Minvale, and Waynesboro soils
• Isolated areas of Sequatchie soils along streams and drainageways
Similar components:
• Armuchee soils in areas where shale layers dominate
• Soils that have bedrock at a depth of 8 to 20 inches

Typical Profile

Talbott

Surface layer:
0 to 4 inches—dark brown, friable silt loam
Subsoil:
4 to 8 inches—yellowish brown, friable silty clay loam
8 to 24 inches—strong brown, firm and very firm clay
24 to 35 inches—yellowish brown, very firm clay
Bedrock:
35 inches—hard limestone

Rock outcrop

The Rock outcrop occurs as areas of exposed limestone. It is in scattered areas throughout this unit. Most outcrops protrude from a few inches to about 24 inches above the surface. Rock outcrop supports little or no vegetation.

Soil Properties and Qualities

Talbott

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Dominantly strongly acid to slightly acid but ranges to mildly alkaline in horizons near bedrock
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Moderate

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns are the hazard of erosion and the Rock outcrop.
• A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
• The main limitations are the steepness of slope and the Rock outcrop.
• A better suited site should be selected.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.

• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the moderate available water capacity and the Rock outcrop.
• Aspect, the depth to bedrock, and the stoniness should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Suited
Management considerations:
• The potential for woodland wildlife habitat is good in areas of the Talbott soil.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
• Food plots or areas of green browse can be established along logging roads and trails.
• The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
• Den trees should not be harvested.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited
Management considerations:
• The main limitations are the moderately slow permeability, the clayey subsoil, low strength, the shrink-swell potential, the depth to bedrock, the Rock outcrop, and the steepness of slope.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: Talbott—7e; Rock outcrop—8s

TeB—Tate loam, 2 to 8 percent slopes

Setting

Landscape position: Stream terraces, footslopes, and alluvial fans
Size of areas: 10 to 50 acres
Major land use: Pasture or hay

Composition

Tate soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Contrasting components:
• Arkaqua, Suches, and Toccoa soils on flood plains
Similar components:
• Intermingled areas of Evard and Hayesville soils

Typical Profile

Surface layer:
0 to 10 inches—brown, friable loam
Subsurface layer:
10 to 15 inches—dark yellowish brown, friable loam
Subsoil:
15 to 34 inches—yellowish brown, friable clay loam
Substratum:
34 to 60 inches—mottled yellowish brown, pale brown, and light yellowish brown, friable clay loam and sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Strongly acid to slightly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Well suited
Management considerations:
• The hazard of erosion is the main management concern.

• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability and the steepness of slope.
• The moderate permeability in the subsoil is a limitation affecting some sanitary facilities and building site development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 2e

To—Toccoa loam, 0 to 4 percent slopes, rarely flooded

Setting

Landscape position: Flood plains
Size of areas: 20 to 600 acres
Major land use: Hay, pasture, row crops, or, in some areas, idle land

Composition

Toccoa soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Waynesboro soils, which are not flooded, on high terraces
• Isolated areas of Hamblen soils in depressions
Similar components:
• Scattered areas of Sequatchie soils on low terraces

Typical Profile

Surface layer:
0 to 10 inches—dark yellowish brown, very friable loam
Substratum:
10 to 26 inches—dark yellowish brown, very friable loam
Buried surface layer:
26 to 34 inches—dark brown, friable loam
Buried subsoil:
34 to 48 inches—dark yellowish brown, friable loam
Buried substratum:
48 to 60 inches—dark yellowish brown, friable loam

Soil Properties and Qualities

Drainage class: Well drained or moderately well drained
Permeability: Moderately rapid
Available water capacity: High

Seasonal high water table: Between depths of 30 and 60 inches
Flooding: Rare; in winter and early spring
Soil reaction: Strongly acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Well suited
Management considerations:
• Few limitations affect the management of cropland.
• Some crops may be damaged by flooding in winter and early spring.
• Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Some hay crops may be damaged by flooding in the spring.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitation affecting urban uses is the flooding, which is difficult to overcome.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 2w

TuF—Tusquitee loam, 20 to 65 percent slopes

Setting

Landscape position: Side slopes and coves at the higher elevations
Size of areas: 10 to 100 acres
Major land use: Woodland

Composition

Tusquitee soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Junaluska and Tsali soils on narrow, convex ridges and side slopes
Similar components:
• Evard soils on the adjacent side slopes

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown, very friable loam
4 to 8 inches—dark brown, friable loam
Subsoil:
8 to 26 inches—dark yellowish brown, friable loam
26 to 42 inches—yellowish brown, friable gravelly loam
42 to 60 inches—dark yellowish brown, friable gravelly loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: High

Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concerns are the hazard of erosion and the steepness of slope.
- A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
- The main limitation is the steepness of slope.
- A better suited site should be selected.

Woodland

Suitability: Suited (fig. 6)
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- Plant competition from undesirable species may be a problem when establishing a new forest crop.
- Proper site preparation helps to control the plant competition that may occur immediately after planting.
- Undesirable plants can be controlled by cutting or by applying herbicides.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for woodland wildlife habitat is good.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited
Management considerations:
- The main limitation affecting urban uses is the steepness of slope.
- Better suited sites should be considered.

Interpretive Group

Land capability classification: 7e

Ud—Udifluvents, loamy and sandy, frequently flooded

Setting

Landscape position: Flood plains
Size of areas: 10 to 200 acres
Major land use: Idle land in most areas; a few areas used for hay, pasture, or row crops or as woodland

Composition

Udifluvents and similar components: 80 to 90 percent
Contrasting components: 10 to 20 percent

Minor Components

Contrasting components:
- Small areas of Evard, Hayesville, and Tate soils on uplands
- Isolated areas of soils that are somewhat poorly drained or poorly drained

Similar components:
- Scattered areas of Suches soils

Typical Profile

Surface layer:
0 to 6 inches—strong brown, very friable sandy loam

Figure 6.—An area of Tusquitee loam, 20 to 65 percent slopes. Some of the best timber in the county is grown in coves in areas of this soil.

Substratum:
6 to 28 inches—strong brown, loose loamy sand
28 to 36 inches—brown, loose loamy coarse sand
Buried surface layer:
36 to 44 inches—dark grayish brown, friable loam
44 to 48 inches—very dark grayish brown, friable silt loam
Buried substratum:
48 to 60 inches—dark grayish brown, loose gravelly sandy loam

Soil Properties and Qualities

Drainage class: Well drained or somewhat excessively drained
Permeability: Rapid or very rapid
Available water capacity: Low
Seasonal high water table: Between depths of 18 and 24 inches
Flooding: Frequent; in winter and early spring
Soil reaction: Extremely acid to moderately acid
Depth to bedrock: More than 60 inches

Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
- The main limitations are the frequent flooding and the low available water capacity.
- Conservation tillage, crop residue management, and cover crops help to increase the rate of infiltration and maintain soil tilth.

Pasture and Hay

Suitability: Suited
Management considerations:
- The main limitations are the low available water capacity and the frequent flooding.
- Some hay crops may be damaged by frequent flooding in the spring.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the seedling mortality rate and the hazard of windthrow.
- When establishing a new forest crop, the seedling mortality rate may be high because of the low available water capacity.
- Sites for planting seedlings should be carefully selected.
- Reinforcement plantings can be made until a desired stand is attained.
- Windthrow is a hazard in some areas because of the sandy textures in the subsoil.
- The windthrow hazard can be reduced by applying a carefully regulated thinning program.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for openland and woodland wildlife habitat is good or fair.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
- Trees and brush along streams provide benefits to wildlife as well as erosion control.
- Brushy thickets can be established by clearing small areas in large tracts of mature woodland.
- Food plots or areas of green browse can be established along logging roads and trails.
- The habitat in areas of native plants can be improved by applying and incorporating lime and fertilizer.
- Den trees should not be harvested.
- Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Unsuited
Management considerations:
- The main limitation affecting urban uses is the flooding, which is difficult to overcome.
- Better suited sites should be considered.

Interpretive Group

Land capability classification: 3w

UnD—Unicoi-Rock outcrop complex, 15 to 35 percent slopes

Setting

Landscape position: Ridgetops and the upper side slopes on Chilhowee and Starr Mountains
Size of areas: 10 to 200 acres
Major land use: Woodland

Composition

Unicoi soil and similar components: 60 to 80 percent
Rock outcrop and similar components: 20 to 40 percent
Contrasting components: 5 to 15 percent

Minor Components

Contrasting components:
- Intermingled areas of McCamy soils
- Keener soils along drainageways, in coves, and on footslopes

Similar components:
- Scattered areas of Cataska soils

Typical Profile

Unicoi

Surface layer:
0 to 3 inches—very dark grayish brown, very friable gravelly loam

Subsoil:
3 to 9 inches—dark yellowish brown, very friable very cobbly loam
9 to 17 inches—yellowish brown, very friable very cobbly fine sandy loam
Bedrock:
17 inches—hard arkosic sandstone

Rock outcrop

The Rock outcrop occurs as areas of exposed arkose, arkosic sandstone, sandstone, and quartzite. It is in scattered areas throughout this unit. Most outcrops protrude a few inches to about 24 inches above the surface. Some are on nearly vertical bluffs. Rock outcrop supports little or no vegetation.

Soil Properties and Qualities

Unicoi

Drainage class: Excessively drained
Permeability: Moderately rapid
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: 7 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concerns are the hazard of erosion, the shallow root zone, the depth to bedrock, the very low available water capacity, and the Rock outcrop.
- A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
- The main limitations are the very low available water capacity, the steepness of slope, and the Rock outcrop.
- A better suited site should be selected.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the equipment limitation, the seedling mortality rate, and the hazard of windthrow.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth, the very low available water capacity, and the Rock outcrop.
- Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
- Reinforcement plantings can be made until a desired stand is attained.
- Windthrow is a hazard in some areas because of the shallow root zone.
- The windthrow hazard can be reduced by applying a carefully regulated thinning program.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban Uses

Suitability: Unsuited
Management considerations:
- The main limitations are the Rock outcrop, the depth to bedrock, and the steepness of slope.
- Better suited sites should be considered.

Interpretive Group

Land capability classification: Unicoi—7s; Rock outcrop—8s

UnF—Unicoi-Rock outcrop complex, 35 to 65 percent slopes

Setting

Landscape position: Ridgetops and the upper side slopes on Chilhowee and Starr Mountains
Size of areas: 10 to 250 acres
Major land use: Woodland

Composition

Unicoi soil and similar components: 40 to 60 percent
Rock outcrop and similar components: 30 to 50 percent
Contrasting components: 5 to 15 percent

Minor Components

Contrasting components:
- Intermingled areas of McCamy soils

• Keener soils along drainageways, in coves, and on footslopes
Similar components:
• Scattered areas of Cataska soils

Typical Profile

Unicoi

Surface layer:
0 to 3 inches—very dark grayish brown, very friable gravelly loam
Subsoil:
3 to 9 inches—dark yellowish brown, very friable very cobbly loam
9 to 17 inches—yellowish brown, very friable very cobbly fine sandy loam
Bedrock:
17 inches—hard arkosic sandstone

Rock outcrop

The Rock outcrop occurs as areas of exposed arkose, arkosic sandstone, sandstone, and quartzite. It is in scattered areas throughout this unit. Most outcrops protrude a few inches to about 24 inches above the surface. Some are on nearly vertical bluffs. Rock outcrop supports little or no vegetation.

Soil Properties and Qualities

Unicoi

Drainage class: Excessively drained
Permeability: Moderately rapid
Available water capacity: Very low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Extremely acid to strongly acid
Depth to bedrock: 7 to 20 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
• The main management concerns are the hazard of erosion, the shallow root zone, the depth to bedrock, the very low available water capacity, and the Rock outcrop.
• A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
• The main limitations are the very low available water capacity, the steepness of slope, and the Rock outcrop.
• A better suited site should be selected.

Woodland

Suitability: Poorly suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, the seedling mortality rate, and the hazard of windthrow.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• The steepness of slope generally is a limitation when large, specialized equipment is used.
• Slopes generally are broken up enough or are short enough that conventional equipment can be used.
• In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
• When establishing a new forest crop, the seedling mortality rate may be high because of the shallow rooting depth, the very low available water capacity, and the Rock outcrop.
• Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the shallow root zone.
• The windthrow hazard can be reduced by applying a carefully regulated thinning program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban Uses

Suitability: Unsuited
Management considerations:
• The main limitations are the Rock outcrop, the depth to bedrock, and the steepness of slope.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: Unicoi—7s; Rock outcrop—8s

W—Water

This map unit consists of areas inundated with water for most of the year. It generally includes rivers, lakes, and ponds.

No interpretations are given for this map unit.

WaF—Wallen channery sandy loam, 15 to 65 percent slopes

Setting

Landscape position: Upland ridges and the upper side slopes
Size of areas: 400 to 1,000 acres
Major land use: Woodland

Composition

Wallen soil and similar components: 80 to 90 percent
Contrasting components: 10 to 20 percent

Minor Components

Contrasting components:
- Scattered areas of Armuchee and Needmore soils where shale bedrock is dominant
- Keener soils on footslopes and the lower side slopes

Similar components:
- Soils that have a lower content of rock fragments than the Wallen soil

Typical Profile

Surface layer:
0 to 4 inches—brown, very friable channery sandy loam
Subsurface layer:
4 to 8 inches—light yellowish brown, very friable very channery fine sandy loam
Subsoil:
8 to 22 inches—light yellowish brown, very friable very channery fine sandy loam
22 to 30 inches—brownish yellow, very friable very channery sandy loam
Bedrock:
30 inches—hard sandstone

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Low
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited
Management considerations:
- The main management concerns are the hazard of erosion, the depth to bedrock, and the low available water capacity.
- A better suited site should be selected.

Pasture and Hay

Suitability: Unsuited
Management considerations:
- The main limitations are the low available water capacity and the steepness of slope.
- A better suited site should be selected.

Woodland

Suitability: Suited
Management considerations:
- The main management concerns are the hazard of erosion, the equipment limitation, the seedling mortality rate, and the hazard of windthrow.
- The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
- Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
- Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
- Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
- The steepness of slope generally is a limitation when large, specialized equipment is used.
- Slopes generally are broken up enough or are short enough that conventional equipment can be used.
- In areas where slopes are long and unbroken, logs can be cabled or winched to adjacent areas that have smoother slopes and seedlings can be planted by hand.
- When establishing a new forest crop, the seedling mortality rate may be high because of the low available water capacity.
- Aspect and the depth to bedrock should be considered carefully when planting sites are selected for seedlings.
- Reinforcement plantings can be made until a desired stand is attained.
- Windthrow is a hazard in some areas because of the moderately deep root zone.
- The windthrow hazard can be reduced by applying a carefully regulated thinning program.

• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban Uses

Suitability: Unsuited
Management considerations:
• The main limitations are the depth to bedrock and the steepness of slope.
• Better suited sites should be considered.

Interpretive Group

Land capability classification: 7s

WbB2—Waynesboro loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: Upland terrace ridgetops
Size of areas: 10 to 125 acres
Major land use: Hay, pasture, or cultivated crops

Composition

Waynesboro soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Narrow strips of Emory and Whitwell soils along drainageways and on flood plains
• Sequatchie soils on low stream terraces
Similar components:
• Scattered areas of Collegedale and Decatur soils
• Waynesboro soils that are not eroded or are severely eroded

Typical Profile

Surface layer:
0 to 7 inches—brown, very friable loam
Subsoil:
7 to 11 inches—red, friable clay loam
11 to 29 inches—dark red, friable clay
29 to 72 inches—dark red, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Well suited
Management considerations:
• Few limitations affect the management of cropland.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.

• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
• Few limitations affect building site development.
• The moderate permeability and the clayey textures in the subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 2e

WbC2—Waynesboro loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Upland terrace ridgetops and side slopes
Size of areas: 7 to 100 acres
Major land use: Hay, pasture, or cultivated crops

Composition

Waynesboro soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Narrow strips of Emory and Whitwell soils along drainageways
• Sequatchie soils on low stream terraces
Similar components:
• Scattered areas of Collegedale and Decatur soils
• Waynesboro soils that are not eroded or are severely eroded

Typical Profile

Surface layer:
0 to 7 inches—brown, very friable loam
Subsoil:
7 to 11 inches—red, friable clay loam
11 to 29 inches—dark red, friable clay
29 to 72 inches—dark red, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
• The hazard of erosion is the main management concern.
• Erosion is a moderate hazard if a conventional tillage system is used.
• Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
• A crop rotation that includes grasses and legumes is a necessary management practice.
• Terraces, grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
• Few limitations affect the management of pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
• Few limitations affect forest management.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cultivating, cutting, or applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited

Management considerations:
- The potential for openland wildlife habitat is good.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
- Trees and brush along streams provide benefits to wildlife as well as erosion control.
- Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Suited
Management considerations:
- The main limitations affecting urban uses are the moderate permeability, the clayey subsoil, low strength, and the steepness of slope.
- The moderate permeability and the clayey textures in the subsoil are limitations affecting some sanitary facilities and building site development.
- Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
- The steepness of slope is a limitation affecting most urban development.
- Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 3e

WbD2—Waynesboro loam, 12 to 25 percent slopes, eroded

Setting

Landscape position: Upland terrace ridgetops and side slopes
Size of areas: 7 to 70 acres
Major land use: Hay, pasture, or cultivated crops

Composition

Waynesboro soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
- Narrow strips of Emory and Whitwell soils along drainageways
- Sequatchie soils on low stream terraces

Similar components:
- Scattered areas of Collegedale and Decatur soils
- Waynesboro soils that are not eroded or are severely eroded

Typical Profile

Surface layer:
0 to 7 inches—brown, very friable loam
Subsoil:
7 to 11 inches—red, friable clay loam
11 to 29 inches—dark red, friable clay
29 to 72 inches—dark red, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Poorly suited
Management considerations:
- The hazard of erosion is the main management concern.
- Erosion is a severe hazard if a conventional tillage system is used.
- Conservation tillage, crop residue management, contour farming, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- A crop rotation that includes grasses and legumes is a necessary management practice.
- Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Suited
Management considerations:
- The main limitation is the steepness of slope.
- The steepness of slope can be a limitation affecting hayland.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, and plant competition.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, the clayey subsoil, low strength, and the steepness of slope.
• The moderate permeability and the clayey textures in the subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 4e

WbD3—Waynesboro clay loam, 12 to 25 percent slopes, severely eroded

Setting

Landscape position: Upland terrace ridgetops and side slopes
Size of areas: 7 to 50 acres
Major land use: Hay, pasture, or cultivated crops

Composition

Waynesboro soil and similar components: 85 to 90 percent
Contrasting components: 10 to 15 percent

Minor Components

Contrasting components:
• Narrow strips of Emory and Whitwell soils along drainageways
• Sequatchie soils on low stream terraces
Similar components:
• Scattered areas of Collegedale and Decatur soils
• Waynesboro soils that are moderately eroded

Typical Profile

Surface layer:
0 to 3 inches—brown, friable clay loam
Subsoil:
3 to 11 inches—red, friable clay loam
11 to 29 inches—dark red, friable clay
29 to 72 inches—dark red, firm clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: At a depth of more than 72 inches
Flooding: None
Soil reaction: Very strongly acid or strongly acid in unlimed areas
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Unsuited

Management considerations:
• The hazard of erosion is the main management concern.
• Intensive erosion-control measures are needed if this soil is used for cultivated crops.

Pasture and Hay

Suitability: Suited
Management considerations:
• The main limitation is the steepness of slope.
• The steepness of slope can be a limitation affecting hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Suited
Management considerations:
• The main management concerns are the hazard of erosion, the equipment limitation, plant competition, and the seedling mortality rate.
• The hazard of erosion may be reduced by locating roads and trails as closely on the contour as possible.
• Permanent access roads can be protected by spreading gravel on the road surface and by installing water bars and culverts.
• Temporary roads that are no longer being used can be closed and then protected by seeding and by installing water bars.
• Logging methods that minimize disturbance of the surface layer reduce the hazard of erosion.
• Plant competition from undesirable species may be a problem when establishing a new forest crop.
• Proper site preparation helps to control the plant competition that may occur immediately after planting.
• Undesirable plants can be controlled by cutting or by applying herbicides.
• When establishing a new forest crop, the seedling mortality rate may be high because of the clayey textures in the surface layer.
• The thickness and texture of the surface layer should be considered carefully when planting sites are selected for seedlings.
• Reinforcement plantings can be made until a desired stand is attained.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
• The potential for openland wildlife habitat is good.
• The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
• Field borders and filter strips provide good wildlife habitat.
• Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
• Trees and brush along streams provide benefits to wildlife as well as erosion control.
• Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
• The main limitations affecting urban uses are the moderate permeability, the clayey subsoil, low strength, and the steepness of slope.
• The moderate permeability and the clayey textures in the subsoil are limitations affecting some sanitary facilities and building site development.
• Low strength may be a problem on sites for local roads and streets or when the soil is used as a source of roadfill.
• The steepness of slope is a limitation affecting most urban development.
• Proper design, installation, and site preparation help to overcome some of the limitations.

Interpretive Group

Land capability classification: 6e

Wt—Whitwell loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape position: Low stream terraces
Size of areas: 8 to 60 acres
Major land use: Hay, pasture, or cultivated crops

Composition

Whitwell soil and similar components: 85 to 95 percent
Contrasting components: 5 to 15 percent

Minor Components

Contrasting components:
• Soils that have more clay in the subsoil than the Whitwell soil
• Small areas of poorly drained soils

Similar components:
- Scattered areas of Sequatchie and Toccoa soils
- Somewhat poorly drained soils

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown, very friable loam
Subsoil:
8 to 32 inches—yellowish brown, friable clay loam; gray mottles in the lower part
32 to 38 inches—brownish yellow, friable clay loam that has gray mottles
38 to 44 inches—yellowish brown, friable loam that has gray mottles
Substratum:
44 to 60 inches—yellowish brown, friable gravelly loam that has gray mottles

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High
Seasonal high water table: Between depths of 24 and 36 inches
Flooding: Occasional; in winter and early spring
Soil reaction: Very strongly acid or strongly acid unless limed
Depth to bedrock: More than 60 inches
Shrink-swell potential: Low

Use and Management

Cropland

Suitability: Suited
Management considerations:
- The main limitations are the seasonal high water table and the flooding.
- In some years the wetness delays planting or hinders harvesting.
- Some crops may be damaged by flooding in winter and early spring.
- The species that have a short growing season and can tolerate the moderate wetness should be selected for planting.
- Conservation tillage, crop residue management, and cover crops help to control erosion, increase the rate of infiltration, and maintain soil tilth.
- Grassed waterways, field borders, and filter strips help to control erosion and runoff.

Pasture and Hay

Suitability: Well suited
Management considerations:
- Few limitations affect the management of pasture and hayland.
- Some hay crops may be damaged by flooding in the spring.
- The species that tolerate wetness and flooding should be selected for planting.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Maintaining the proper fertility level and an adequate stand can help to increase production and reduce runoff.

Woodland

Suitability: Well suited
Management considerations:
- Few limitations affect forest management.
- When establishing a new forest crop, the seedling mortality rate may be high.
- Sites for planting seedlings should be carefully selected.
- Reinforcement plantings can be made until a desired stand is attained.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Wildlife Habitat

Suitability: Well suited
Management considerations:
- The potential for openland wildlife habitat is good.
- The habitat can be maintained or improved by providing food, cover, nesting areas, and den sites.
- Field borders and filter strips provide good wildlife habitat.
- Trees or shrubs in small areas and along fence rows can break up large open areas and provide food and cover.
- Trees and brush along streams provide benefits to wildlife as well as erosion control.
- Brush piles or other nesting sites are needed.

Urban Uses

Suitability: Poorly suited
Management considerations:
- The main limitations are the flooding and the wetness, which are difficult to overcome.
- Better suited sites should be considered.

Interpretive Group

Land capability classification: 2w

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

Richard L. Livingston, soil scientist, and Darwin Newton, state soil scientist, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Applications of lime or fertilizer, or both, are needed on many of the soils in Polk County. The amounts needed depend on the natural content of lime and plant nutrients in the soils, which is determined by laboratory analyses of soil samples; on the needs of the crops; and on the desired level of yields.

Most of the agricultural soils in the county were never high in content of organic matter. It is important to return organic matter to the soils by adding farm manure; leaving plant residue on the soil surface; and growing sod crops, cover crops, and green manure crops.

Tillage tends to break down soil structure. It should be kept to the minimal amount necessary to prepare a seedbed and control weeds. Maintaining the organic matter content of the plow layer helps to protect the soil structure.

All of the gently sloping and steeper soils in the county that are cultivated are subject to erosion. Runoff and erosion occur mostly while a cultivated crop is growing or soon after it has been harvested. A cropping system that controls runoff and erosion, used in combination with other erosion-control practices, is needed in areas of erodible soils, such as Decatur silt loam, 2 to 5 percent slopes, eroded. Cropping system refers to the sequence of crops grown, in combination with management that includes minimum tillage, mulch planting, crop residue management, cover crops, green manure crops, and applications of lime and fertilizer. Other erosion-control practices are farming on the contour, terracing, stripcropping, diverting runoff, and using filter strips. The effectiveness of a particular combination of these measures differs from

one soil to another, and different combinations can be equally effective on the same soil.

A cover of pasture plants helps to control erosion on all but a few of the erodible soils in the county. A high level of pasture management is needed in areas of some soils to maintain enough ground cover to protect the soils from erosion. It provides for fertilization, proper grazing use, the proper mixture of pasture plants, and other management practices that help to maintain a good ground cover and forage for grazing. Proper stocking rates, pasture rotation, and deferred grazing help to control overgrazing. It is important in areas of some soils that the pasture mixtures selected need the least amount of renovation necessary to maintain good ground cover and forage for grazing.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forestland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA 1961).

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat. There are no class 5 soils in Polk County.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one

class. They are designated by adding a small letter, *e, w,* or *s,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); and *s* shows that the soil is limited mainly because it is shallow, droughty, or stony.

In class 1 there are no subclasses because the soils of this class have few limitations.

The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in the yields table.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 23,000 acres in the survey area, or nearly 8 percent of the total acreage, meets the soil requirements for prime farmland. Scattered areas of this land are throughout the county, but most are in the western part, mainly in map units 1 and 2, which are described under the heading "General Soil Map Units."

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Woodland Management and Productivity

Richard L. Livingston, soil scientist, and Darwin Newton, state soil scientist, helped prepare this section.

Originally, Polk County was completely wooded. Woodland now covers about 80 percent of the county, of which about 54 percent is in the Cherokee National Forest.

The areas of woodland produce good stands of commercial trees. Needle-leaf tree species are most frequently on the ridges, the steeper mountainsides, and footslopes. Many areas of pines were planted for pulpwood production. Broadleaf species generally are dominant in the coves and along rivers and creeks.

The value of the wood products is substantial but is below its potential. The woodland also provides wildlife habitat, opportunities for recreation, natural beauty, and soil and water conservation.

Table 7 can be used by woodland owners or forest managers in planning the use of soils for wood crops. In the table, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Erosion hazard is the probability that damage will occur as a result of site preparation and cutting where the soil is exposed along roads, skid trails, and fire lanes and in log-handling areas. Forests that have been burned or overgrazed are also subject to erosion. Ratings of the erosion hazard are based on the percent of the slope. A rating of *slight* indicates that no particular prevention measures are needed under

ordinary conditions. A rating of *moderate* indicates that erosion-control measures are needed in certain silvicultural activities. A rating of *severe* indicates that special precautions are needed to control erosion in most silvicultural activities.

Equipment limitation reflects the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. The chief characteristics and conditions considered in the ratings are slope, stones on the surface, rock outcrops, soil wetness, and texture of the surface layer. A rating of *slight* indicates that under normal conditions the kind of equipment and season of use are not significantly restricted by soil factors. Soil wetness can restrict equipment use, but the wet period does not exceed 1 month. A rating of *moderate* indicates that equipment use is moderately restricted because of one or more soil factors. If the soil is wet, the wetness restricts equipment use for a period of 1 to 3 months. A rating of *severe* indicates that equipment use is severely restricted either as to the kind of equipment that can be used or the season of use. If the soil is wet, the wetness restricts equipment use for more than 3 months.

Seedling mortality refers to the death of naturally occurring or planted tree seedlings, as influenced by the kinds of soil, soil wetness, or topographic conditions. The factors used in rating the soils for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, effective rooting depth, and slope aspect. A rating of *slight* indicates that seedling mortality is not likely to be a problem under normal conditions. Expected mortality is less than 25 percent. A rating of *moderate* indicates that some problems from seedling mortality can be expected. Extra precautions are advisable. Expected mortality is 25 to 50 percent. A rating of *severe* indicates that seedling mortality is a serious problem. Extra precautions are important. Replanting may be necessary. Expected mortality is more than 50 percent.

Windthrow hazard is the likelihood that trees will be uprooted by the wind because the soil is not deep enough for adequate root anchorage. The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Plant competition ratings indicate the degree to which undesirable species are expected to invade and grow when openings are made in the tree canopy. The main factors that affect plant competition are depth to the water table and the available water capacity. A rating of *slight* indicates that competition from undesirable plants is not likely to prevent natural regeneration or suppress the more desirable species. Planted seedlings can become established without undue competition. A rating of *moderate* indicates that competition may delay the establishment of desirable species. Competition may hamper stand development, but it will not prevent the eventual development of fully stocked stands. A rating of *severe* indicates that competition can be expected to prevent regeneration unless precautionary measures are applied.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index* and as a *volume* number. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Volume of wood fiber, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

The first species listed under *common trees* for a soil is the indicator species for that soil. It generally is the most common species on the soil and is the one that determines the ordination class.

Suggested trees to plant are those that are suitable for commercial wood production.

Recreation

Richard L. Livingston, soil scientist, and Darwin Newton, state soil scientist, helped prepare this section.

Recreational opportunities vary in Polk County. They range from hiking on the rugged mountain trails in the Cherokee National Forest to whitewater rafting on the Ocoee River.

The Ocoee River has steadily gained popularity as one of the Southeast's premier whitewater rivers. Annually, up to one-quarter of a million rafters enjoy

the wild rapids of this river. The 1996 Olympic Slalom Canoe/Kayak Competition was held on the Ocoee River.

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In the table, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures.

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Richard L. Livingston, soil scientist, and Darwin Newton, state soil scientist, helped prepare this section.

Polk County has a large and varied population of wildlife and fish. The abundance and distribution of any particular species depends on the land use, the amount of available water, and the kind of vegetation in the area. The species that prefer the more openland areas, which include cropland, pasture, brushy fence rows, thickets, and scattered woodlots, include cottontail rabbit, bobwhite quail, mourning dove, meadowlark, eastern bluebird, groundhog, and coyote. These species are most abundant where the vegetation is diverse. The species that prefer woodland areas, upland woodlots, and bottom-land hardwoods include white-tailed deer, gray squirrel, wild turkey, raccoon, black bear, wild boar, and a variety of nongame birds. Water areas and lakes of the Conasauga, Hiwassee, and Ocoee Rivers provide breeding habitat for wood ducks and resting and feeding areas for other migratory waterfowl. These areas also are important to aquatic nongame birds and to furbearers, such as beaver, mink, and muskrat.

The streams, lakes, and ponds in the county are inhabited by bream, largemouth bass, smallmouth

bass, and catfish. Trout are stocked in several streams in the area. Siltation, contamination, and drainage are some of the major problems that have reduced the quality and quantity of fish habitat.

In most areas of the county, the wildlife habitat can be improved by increasing the amount of food, water, and cover available to wildlife. Areas in general soil map units 1 and 2 have good potential for the improvement of openland wildlife habitat. Areas in map units 3, 4, 5, 6, 7, and 8 have good potential for the improvement of woodland wildlife habitat.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, orchardgrass, annual lespedeza, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are common ragweed, goldenrod, beggarweed, partridge pea, and broom sedge.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, shrub honeysuckle, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, and cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, cattails, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, wild boar, and black bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, muskrat, mink, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a

maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock or a very firm dense layer, stone content, soil texture, and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, and shrinking and swelling can cause the movement of footings. A high water table, depth to bedrock, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock, and the available water capacity in the upper 40 inches affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 11 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock, and flooding affect absorption of the effluent. Large stones and bedrock interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

The table gives ratings for the natural soil that

makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock, flooding, and large stones.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope and bedrock can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, and soil reaction affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity

index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, and bedrock.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel or stones, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel or stones, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable

compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table and permeability of the aquifer. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock or other layers that affect the rate of water movement, permeability, depth to a high water table or depth of standing water if the soil is subject to ponding, slope, and susceptibility to flooding. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. Low available water capacity, restricted rooting depth, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 14 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO 1998).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 15 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 15, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 15 as the K factor (Kw and Kf) and the T factor. Erosion factor K

indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Chemical Properties

Table 16 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Water Features

Table 17 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from

adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 18 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff 1975, 1992). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 19 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizonation, plus *udult*, the suborder of the Ultisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, siliceous, thermic Typic Hapludults.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. An example is the Apison series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff 1975) and in "Keys to Soil Taxonomy" (Soil Survey Staff 1992). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Apison Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Sloping to steep ridges and side slopes

Parent material: Residuum derived from shale and siltstone
Slope range: 5 to 25 percent
Taxonomic class: Fine-loamy, siliceous, thermic Typic Hapludults

Typical Pedon

Apison silt loam, 5 to 12 percent slopes, eroded; 1.3 miles west of the intersection of U.S. Highway 411 and Browder Road, 60 feet north of Browder Road:

Ap—0 to 6 inches; brown (10YR 5/3) silt loam; moderate medium granular structure; very friable; many fine and medium roots; 10 percent shale channers; moderately acid; abrupt smooth boundary.
Bt1—6 to 14 inches; brownish yellow (10YR 6/6) silt loam; weak medium subangular blocky structure; friable; few fine and medium roots; few faint clay films on faces of peds; 5 percent shale channers; moderately acid; clear smooth boundary.
Bt2—14 to 20 inches; brownish yellow (10YR 6/6) silt loam; few medium faint pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine and medium roots; 5 percent shale channers; strongly acid; clear smooth boundary.
Bt3—20 to 30 inches; brownish yellow (10YR 6/6) channery silt loam; common medium faint pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine and medium roots; 15 percent shale channers; strongly acid; clear wavy boundary.
Cr—30 to 61 inches; soft shale with thin seams of pale brown (10YR 6/3) silt loam in the upper 8 inches.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to soft bedrock: 20 to 40 inches
Size and kind of rock fragments: Channers and pebbles of shale and siltstone
Reaction: Very strongly acid or strongly acid in unlimed areas

Ap horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—2 to 15 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 8
Mottles—few or common; in shades of brown, yellow, or red
Texture of the fine-earth fraction—silt loam, silty clay loam, or clay loam
Content of rock fragments—2 to 25 percent

Cr horizon:
Brown, yellow, and reddish, tilted shale bedrock that has 1- to 3-inch seams of the channery, very channery, and extremely channery analogs of silt loam or silty clay loam

Arkaqua Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Physiographic area: Southern Blue Ridge Mountains
Position on the landform: Nearly level flood plains
Parent material: Alluvium derived from igneous and metamorphic rocks
Slope range: 0 to 2 percent
Taxonomic class: Fine-loamy, mixed, mesic Fluvaquentic Dystrochrepts

Typical Pedon

Arkaqua silt loam, in an area of Arkaqua-Suches complex, occasionally flooded; 2 miles north of Harbuck on State Road 68, about 0.8 mile east on road at Croft Chapel, 600 feet north of the road:

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; very friable; common fine roots; common flakes of mica; moderately acid; abrupt smooth boundary.
Bw1—6 to 13 inches; olive brown (2.5Y 4/4) silt loam; weak fine subangular blocky structure parting to moderate medium granular; friable; few fine roots; common flakes of mica; strongly acid; clear smooth boundary.
Bw2—13 to 25 inches; light olive brown (2.5Y 5/4) silt loam; few fine distinct strong brown (7.5YR 5/6) and dark grayish brown (2.5Y 4/2) mottles; weak fine subangular blocky structure parting to moderate medium granular; friable; few fine roots; common flakes of mica; strongly acid; clear smooth boundary.
Bg—25 to 37 inches; very dark gray (5Y 3/1) silt loam; weak fine granular structure; friable; few fine roots; common flakes of mica; 5 percent quartzite pebbles; strongly acid; clear smooth boundary.
Cg1—37 to 41 inches; dark gray (5Y 4/1) loam; few fine distinct light olive brown (2.5Y 5/6) mottles; massive; friable; few fine roots; strongly acid; clear smooth boundary.

Cg2—41 to 50 inches; mottled very dark gray (5Y 3/1) and dark gray (2.5Y 4/0) loam; massive; friable; few fine roots; strongly acid; clear smooth boundary.
2C—50 to 61 inches; strata of unconsolidated pebbles up to 3 inches in diameter.

Range in Characteristics

Thickness of the solum: 37 to 60 inches
Depth to bedrock: More than 60 inches
Depth to stratified sand and gravel: 44 to more than 72 inches
Size and kind of rock fragments: Pebbles of igneous and metamorphic rocks
Flakes of mica: Few to many throughout the profile
Reaction: Very strongly acid to slightly acid in unlimed areas

Ap horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—0 to 10 percent

Bw horizon:
Hue—10YR to 5Y
Value—3 to 5
Chroma—3 to 6
Mottles—few to many; in shades of brown, yellow, or gray
Texture—silt loam, loam, or fine sandy loam
Content of rock fragments—0 to 10 percent

Bg horizon:
Hue—10YR to 5Y
Value—3 to 5
Chroma—1 or 2
Mottles—few to many; in shades of brown, yellow, or gray
Texture—silt loam, loam, or fine sandy loam
Content of rock fragments—0 to 10 percent

Cg horizon:
Hue—7.5YR to 5Y or is neutral
Value—1 to 6
Chroma—0 to 2
Mottles—few to many; in shades of brown; some horizons are mottled and have no dominant matrix color
Texture of the fine-earth fraction—loamy sand, sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam
Content of rock fragments—5 to 50 percent

2C horizon:
Stratified gravel and sand

Armuchee Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Sloping to very steep ridgetops and side slopes
Parent material: Residuum derived from acid shale and siltstone
Slope range: 5 to 50 percent
Taxonomic class: Clayey, mixed, thermic Ochreptic Hapludults

Typical Pedon

Armuchee channery silt loam, 5 to 12 percent slopes, eroded; 0.6 mile west of the intersection of Curbow Road and U.S. Highway 411, left 0.15 mile on a gravel logging road, 30 feet west of the road:

Oe—1 inch to 0; undecomposed litter layer of leaves, pine needles, and twigs.
A—0 to 4 inches; dark grayish brown (10YR 4/2) channery silt loam; weak fine granular structure; very friable; common fine and medium roots; few fine pores; 20 percent soft shale channers; strongly acid; abrupt smooth boundary.
Bt1—4 to 7 inches; yellowish brown (10YR 5/6) channery silty clay loam; common fine faint yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; 20 percent soft shale channers; few fine and medium roots; few faint clay films on faces of peds; strongly acid; clear smooth boundary.
Bt2—7 to 13 inches; strong brown (7.5YR 5/6) channery silty clay; common medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; 20 percent shale channers; few fine roots; few fine clay films on faces of peds; strongly acid; clear wavy boundary.
C—13 to 21 inches; strong brown (7.5YR 5/6) very channery silty clay; common medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 5/6) mottles; massive; firm; 40 percent shale channers; strongly acid; gradual irregular boundary.
Cr—21 to 25 inches; soft, thin-bedded shale bedrock.

Range in Characteristics

Thickness of the solum: 8 to 20 inches
Depth to soft bedrock: 20 to 40 inches
Size and kind of rock fragments: Pebbles and channers of shale

Reaction: Very strongly acid or strongly acid in unlimed areas

A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—5 to 25 percent

Bt horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—6 to 8
Mottles—in shades of brown, red, or yellow
Texture of the fine-earth fraction—silty clay loam, silty clay, or clay
Content of rock fragments—15 to 35 percent

C horizon:
Hue—7.5YR or 10YR
Value—5
Chroma—4 to 8
Mottles—in shades of brown, red, yellow, or gray
Texture of the fine-earth fraction—silty clay loam, silty clay, or clay
Content of rock fragments—40 to 85 percent

Cr horizon:
Soft, fractured, reddish and brownish shale

Brasstown Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Blue Ridge Mountains
Position on the landform: Sloping to steep ridgetops and side slopes
Parent material: Residuum derived from metasedimentary rocks, such as phyllite, slate, and metasiltstone; the upper part of the solum may be affected by soil creep
Slope range: 5 to 35 percent
Taxonomic class: Fine-loamy, mixed, mesic Typic Hapludults

Typical Pedon

This typical pedon is located in Cherokee County, North Carolina, at the type location for the official series description; west from Murphy on U.S. Highway 64 to State Road 1301, west on State Road 1301 to State Road 1302, northwest on State Road 1302 to State Road 1303, northeast on State Road 1303 to Forest Service Road 307, about 0.5 mile west of Forest Service Road 6068 on Forest Service Road 307; on a 24-percent, west-facing, forested mountain slope:

Oi—1 inch to 0; partially decomposed deciduous leaves, twigs, and roots.
A—0 to 6 inches; dark brown (7.5YR 4/4) channery fine sandy loam, reddish yellow (7.5YR 6/6) dry; moderate fine granular structure; very friable; common fine and medium roots; 25 percent, by volume, metasandstone and phyllite channers; few fine flakes of mica; very strongly acid; clear wavy boundary.
BA—6 to 10 inches; yellowish red (5YR 5/6) channery sandy clay loam; weak medium subangular blocky structure; very friable; common fine and medium roots; 20 percent, by volume, metasandstone and phyllite channers; common fine flakes of mica; very strongly acid; abrupt wavy boundary.
Bt—10 to 29 inches; red (2.5YR 4/8) channery sandy clay loam; moderate medium subangular blocky structure; friable; 25 percent, by volume, metasandstone and phyllite channers; common fine flakes of mica; few fine and medium roots; strongly acid; gradual wavy boundary.
BC—29 to 37 inches; red (2.5YR 4/6) channery fine sandy loam; weak medium subangular blocky structure; very friable; 25 percent, by volume, phyllite channers; common fine flakes of mica; strongly acid; gradual wavy boundary.
C—37 to 46 inches; multicolored phyllite saprolite having a texture of channery very fine sandy loam; massive; very friable; 30 percent, by volume, phyllite channers; common fine flakes of mica; strongly acid; gradual wavy boundary.
Cr—46 to 60 inches; multicolored, weathered and fractured interbedded metasandstone and phyllite; partially consolidated, can be dug with difficulty with a spade.

Range in Characteristics

Thickness of the solum: 26 to 50 inches
Depth to soft bedrock: 40 to 60 inches
Size and kind of rock fragments: Pebbles and channers of phyllite, slate, and metasiltstone
Reaction: Extremely acid to moderately acid

A horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 6
Texture of the fine-earth fraction—fine sandy loam
Content of rock fragments—2 to 30 percent

BA horizon:
Hue—2.5YR to 7.5YR
Value—4 to 6

Chroma—4 to 8
Texture of the fine-earth fraction—loam, fine sandy loam, sandy clay loam, or silt loam
Content of rock fragments—5 to 35 percent

Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—loam, sandy clay loam, clay loam, silt loam, or silty clay loam
Content of rock fragments—5 to 35 percent

BC horizon:
Hue—2.5YR to 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—loam, fine sandy loam, sandy clay loam, or silt loam
Content of rock fragments—5 to 35 percent

C horizon:
Generally mottled and has no dominant matrix color; otherwise, hue, value, and chroma similar to those of the BC horizon
Texture of the fine-earth fraction—silt loam, silty clay loam, or loam
Content of rock fragments—5 to 35 percent

Cr horizon:
Multicolored, weathered phyllite, slate, or metasiltstone

Brevard Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Blue Ridge Mountains
Position on the landform: Gently sloping to steep footslopes, coves, and valley-fill areas
Parent material: Colluvium derived from igneous and metamorphic rocks
Slope range: 5 to 45 percent
Taxonomic class: Fine-loamy, oxidic, mesic Typic Hapludults

Typical Pedon

Brevard loam, 5 to 15 percent slopes; 0.9 mile northeast of Reliance on the Tellico-Reliance Road, 100 feet west of the road:

A—0 to 2 inches; dark brown (10YR 4/3) loam; weak fine granular structure; very friable; many fine and few medium roots; strongly acid; abrupt smooth boundary.

BE—2 to 7 inches; strong brown (7.5YR 5/6) silt loam; moderate medium granular structure; very friable; many fine and few medium roots; very strongly acid; abrupt smooth boundary.

Bt1—7 to 18 inches; yellowish red (5YR 5/8) silty clay loam; moderate medium subangular blocky structure; friable; 5 percent quartzite gravel; common fine and few medium roots; few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—18 to 30 inches; yellowish red (5YR 5/8) silty clay loam; moderate medium subangular blocky structure; friable; 5 percent quartzite gravel; few fine and medium roots; common distinct clay films of faces of peds; very strongly acid; gradual wavy boundary.

Bt3—30 to 64 inches; yellowish red (5YR 5/8) silty clay loam; moderate and weak medium subangular blocky structure; friable; 5 percent quartzite gravel; few fine roots; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt4—64 to 70 inches; yellowish red (5YR 5/8) silty clay loam; moderate and weak medium subangular blocky structure; friable; 5 percent quartzite gravel; few fine roots; few faint clay films on faces of peds; very strongly acid.

Range in Characteristics

Thickness of the solum: 50 to more than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and cobbles of igneous and metamorphic rocks
Reaction: Very strongly acid to moderately acid in unlimed areas

A horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 20 percent

BE horizon:
Hue—5YR or 7.5YR
Value—4 to 6
Chroma—4 or 6
Texture of the fine-earth fraction—silt loam, loam, fine sandy loam, or sandy loam
Content of rock fragments—0 to 25 percent

Bt horizon:
Hue—2.5YR or 5YR
Value—4 to 6
Chroma—6 or 8

Texture of the fine-earth fraction—silty clay loam, clay loam, or sandy clay loam
Content of rock fragments—0 to 35 percent

Cataska Series

Depth class: Shallow
Drainage class: Excessively drained
Permeability: Moderately rapid or rapid
Physiographic area: Southern Blue Ridge Mountains
Position on the landform: Very steep side slopes and narrow ridgetops
Parent material: Residuum derived from metasedimentary rocks, such as phyllite, slate, metasiltstone, and metashale
Slope range: 35 to 90 percent
Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Typic Dystrochrepts

Typical Pedon

Cataska channery silt loam, in an area of Cataska-Rock outcrop complex, 35 to 65 percent slopes; 300 yards north along the Left Prong of Caney Creek from the Ocoee River:

Oe—2 inches to 0; nearly black, partially decomposed organic matter of hardwood leaves and pine needles.
A—0 to 1 inch; very dark grayish brown (10YR 3/2) channery silt loam; weak medium and fine granular structure; very friable; many fine and medium roots; 30 percent phyllite channers; strongly acid; abrupt smooth boundary.
E—1 to 5 inches; brown (10YR 4/3) channery silt loam; weak medium and fine granular structure; very friable; many fine and medium roots; 30 percent phyllite channers; strongly acid; clear wavy boundary.
Bw—5 to 15 inches; strong brown (7.5YR 5/6) very channery silt loam; weak medium and fine subangular blocky structure; friable; common roots; 50 percent phyllite channers; strongly acid; abrupt smooth boundary.
Cr—15 to 24 inches; weathered phyllite rock that can be removed with handtools; seams and cracks between the rocks filled with strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6) silt loam; strongly acid; abrupt smooth boundary.
R—24 inches; hard, fractured phyllite.

Range in Characteristics

Thickness of the solum: 10 to 18 inches
Depth to soft bedrock: 10 to 20 inches
Depth to hard bedrock: 20 to more than 40 inches
Size and kind of rock fragments: Channers and flagstones of metasedimentary rocks, such as phyllite, slate, metasiltstone, and metashale
Reaction: Extremely acid to moderately acid

A horizon:
Hue—10YR
Value—2 to 4
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—15 to 45 percent

E horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—15 to 45 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—35 to 80 percent

Cr horizon:
Fractured and tilted phyllite, slate, metasiltstone, or metashale; spaces between rocks generally filled with silt loam or loam similar to the fine-earth fraction in the Bw horizon

R horizon:
Hard phyllite, slate, metasiltstone, or metashale

Citico Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Blue Ridge Mountains
Position on the landform: Moderately steep to very steep lower parts of side slopes and footslopes
Parent material: Colluvium derived mainly from phyllite, slate, and metasedimentary rocks
Slope range: 15 to 65 percent
Taxonomic class: Fine-loamy, mixed, mesic Typic Dystrochrepts

Typical Pedon

Citico channery silt loam, 15 to 35 percent slopes; 1 mile west of Springtown, 1.2 miles north from Maggie Creek Campground:

Oe—1 inch to 0; black organic matter of decomposed leaf litter.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) channery silt loam; moderate medium granular structure; very friable; many fine and medium roots; 20 percent phyllite channers; moderately acid; gradual smooth boundary.
BE—4 to 12 inches; dark yellowish brown (10YR 4/4) channery silt loam; moderate medium granular structure; friable; many fine and medium roots; 25 percent phyllite channers; strongly acid; gradual smooth boundary.
Bw—12 to 31 inches; dark yellowish brown (10YR 4/4) channery silt loam; weak fine subangular blocky structure; friable; few fine and medium roots; 25 percent phyllite channers; strongly acid; gradual wavy boundary.
C—31 to 45 inches; yellowish brown (10YR 5/6) very flaggy silt loam; massive; friable; few fine roots; 50 percent phyllite flagstones and channers; strongly acid; abrupt smooth boundary.
R—45 inches; hard phyllite rock.

Range in Characteristics

Thickness of the solum: 30 to 50 inches
Depth to bedrock: 40 to 60 inches
Size and kind of rock fragments: Channers, pebbles, and flagstones, mostly of phyllite and slate
Reaction: Strongly acid

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture of the fine-earth fraction—silt loam
Content of rock fragments—15 to 35 percent

BE horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—15 to 35 percent

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—15 to 35 percent

C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—15 to 60 percent

R horizon:
Hard phyllite, slate, or metasedimentary rock

Collegedale Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Sloping to steep convex ridges and side slopes
Parent material: Residuum derived from limestone and dolomite
Slope range: 5 to 25 percent
Taxonomic class: Clayey, mixed, thermic Typic Paleudults

Typical Pedon

Collegedale silt loam, 5 to 12 percent slopes, eroded; 2.2 miles south of Old Fort on U.S. Highway 411, about 0.2 mile east of U.S. Highway 411 on Ladd Springs Road, 125 feet south of the road:

Ap—0 to 6 inches; yellowish brown (10YR 5/4) silt loam; moderate medium granular structure; friable; few fine roots; 10 percent chert gravel; slightly acid; abrupt smooth boundary.
Bt1—6 to 17 inches; yellowish red (5YR 5/6) clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; few fine roots; 2 percent chert gravel; slightly acid; clear smooth boundary.
Bt2—17 to 26 inches; strong brown (7.5YR 5/8) clay; common medium distinct yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; few fine roots; 2 percent chert gravel; moderately acid; clear smooth boundary.
Bt3—26 to 38 inches; yellowish red (5YR 5/6) clay; common medium distinct strong brown (7.5YR 5/8) and brownish yellow (10YR 6/8) and few medium distinct pale brown (10YR 6/3) mottles; moderate medium angular and subangular blocky structure; firm; common distinct clay films of faces of peds; few fine roots; 5 percent chert gravel; strongly acid; gradual smooth boundary.
Bt4—38 to 45 inches; yellowish red (5YR 5/6) clay; many medium distinct strong brown (7.5YR 5/8) and white (10YR 8/2) mottles; moderate medium angular and subangular blocky structure; firm; common distinct clay films on faces of peds; 5 percent chert gravel; strongly acid; gradual wavy boundary.

Bt5—45 to 53 inches; mottled yellowish red (5YR 5/6), yellowish brown (10YR 5/6), strong brown (7.5YR 5/8), and white (10YR 8/2) silty clay; moderate medium angular and subangular blocky structure; firm; few faint clay films on faces of peds; 5 percent chert gravel; strongly acid; gradual wavy boundary.
Bt6—53 to 65 inches; yellowish red (5YR 5/6) clay; many medium distinct white (10YR 8/2) and yellowish brown (10YR 5/6) mottles; moderate medium angular and subangular blocky structure with a few seams of relic rock structure that is massive; firm; few faint clay films on faces of peds; 5 percent chert gravel; strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Chert pebbles
Reaction: Very strongly acid or strongly acid unless limed

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam
Content of rock fragments—0 to 10 percent

Bt horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—6 or 8
Mottles—in shades of brown or gray; most prevalent below a depth of about 25 inches; some subhorizons are mottled and have no dominant matrix color
Texture—clay or silty clay
Content of rock fragments—0 to 10 percent

Decatur Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Gently sloping to moderately steep ridges and side slopes
Parent material: Old alluvium or colluvium or old alluvium overlying residuum derived from limestone or dolomite
Slope range: 2 to 20 percent
Taxonomic class: Clayey, kaolinitic, thermic Rhodic Paleudults

Typical Pedon

Decatur silt loam, 2 to 5 percent slopes, eroded; 500 feet east of the intersection of the Conasauga River and Old Federal Road, about 1,000 feet south of Old Patty Road from Old Columbus Road, 300 feet east in a field:

Ap—0 to 6 inches; dark reddish brown (5YR 3/4) silt loam; strong medium granular structure; friable; common fine roots; 10 percent quartz and granite pebbles; slightly acid; abrupt smooth boundary.
Bt1—6 to 15 inches; dark red (10R 3/6) clay; moderate medium and fine subangular blocky structure; friable; common fine roots; common distinct clay films on faces of peds; 5 percent quartz and granite pebbles and cobbles; moderately acid; gradual smooth boundary.
Bt2—15 to 28 inches; dark red (10R 3/6) clay; moderate medium subangular blocky structure; friable; common fine roots; common distinct clay films on faces of peds; 5 percent quartz and granite pebbles and cobbles; strongly acid; gradual smooth boundary.
Bt3—28 to 50 inches; dark red (10R 3/6); clay; moderate medium angular blocky and subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; 5 percent quartz and granite pebbles and cobbles; strongly acid; gradual smooth boundary.
Bt4—50 to 67 inches; dark red (2.5YR 3/6) clay; moderate medium angular blocky and subangular blocky structure; firm; common distinct clay films on faces of peds; 5 percent quartz and granite pebbles and cobbles; strongly acid.

Range in Characteristics

Thickness of the solum: More than 72 inches
Depth to bedrock: More than 72 inches
Size and kind of rock fragments: Rounded pebbles and cobbles of igneous, metamorphic, and sedimentary rocks
Reaction: Very strongly acid to moderately acid unless limed

Ap horizon:
Hue—2.5YR or 5YR
Value—2 or 3
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—0 to 10 percent

Bt horizon:
Hue—10R or 2.5YR
Value—3
Chroma—4 or 6

Texture—clay or silty clay
Content of rock fragments—0 to 10 percent

Ditney Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Southern Blue Ridge Mountains
Position on the landform: Moderately steep to very steep ridges and side slopes
Parent material: Residuum derived from arkose, arksoic sandstone, quartzite, or greywacke
Slope range: 12 to 65 percent
Taxonomic class: Coarse-loamy, mixed, mesic Typic Dystrochrepts

Typical Pedon

Ditney loam, 12 to 35 percent slopes; 1.5 miles from the Appalachia Powerhouse on the Hiwassee River, east on a Forest Service road, 50 feet north of the road:

Oe—1 inch to 0; loose leaves and partially decomposed organic matter.
A—0 to 3 inches; dark yellowish brown (10YR 4/4) loam; weak medium granular structure; very friable; many fine and medium roots; 10 percent arkosic sandstone pebbles; very strongly acid; clear smooth boundary.
BE—3 to 7 inches; yellowish brown (10YR 5/4) loam; weak medium granular structure; very friable; many fine and medium roots; 10 percent arkosic sandstone pebbles; very strongly acid; clear smooth boundary.
Bw1—7 to 15 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; common fine and medium roots; 10 percent arkosic sandstone pebbles and cobbles; very strongly acid; clear wavy boundary.
Bw2—15 to 25 inches; strong brown (7.5YR 5/6) cobbly loam; moderate medium subangular blocky structure; friable; common fine and medium roots; 25 percent arkosic sandstone cobbles and pebbles; very strongly acid; gradual wavy boundary.
BC—25 to 35 inches; brown (7.5YR 5/4) cobbly loam; weak coarse subangular blocky structure; friable; few fine and medium roots; 25 percent arkosic sandstone cobbles and pebbles; very strongly acid; clear wavy boundary.
R—35 inches; hard arkosic sandstone.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Size and kind of rock fragments: Pebbles and cobbles of arkose, arkosic sandstone, quartzite, or greywacke
Reaction: Extremely acid to strongly acid

A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—5 to 35 percent

BE and Bw horizons:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of the fine-earth fraction—loam, sandy loam, or fine sandy loam
Content of rock fragments—5 to 35 percent

BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of the fine-earth fraction—loam, sandy loam, or fine sandy loam
Content of rock fragments—10 to 40 percent

R horizon:
Hard greywacke, arkosic sandstone, arkose, or quartzite bedrock

Emory Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Nearly level and gently sloping flood plains and depressional areas
Parent material: Local alluvium overlying a buried soil
Slope range: 0 to 4 percent
Taxonomic class: Fine-silty, siliceous, thermic Fluventic Umbric Dystrochrepts

Typical Pedon

Emory silt loam, 0 to 4 percent slopes, occasionally flooded; 1 mile east of Old Patty, 0.3 mile east of the intersection of Rahts Lane and East Patty Road, 300 feet north of the road:

Ap—0 to 8 inches; dark reddish brown (5YR 3/4) silt loam; moderate medium granular structure; friable; many fine and medium roots; moderately acid; clear smooth boundary.
Bw—8 to 23 inches; dark reddish brown (5YR 3/4) silty clay loam; weak medium subangular blocky structure; friable; common fine roots; moderately acid; clear smooth boundary.
Ab—23 to 32 inches; dark reddish brown (5YR 3/3) silt loam; weak medium granular structure; friable; few fine roots; moderately acid; clear smooth boundary.
Btb1—32 to 38 inches; reddish brown (5YR 4/4) silty clay loam; weak medium subangular blocky structure; friable; few faint clay films on faces of some peds; few fine roots; strongly acid; gradual smooth boundary.
Btb2—38 to 46 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of some peds; strongly acid; gradual smooth boundary.
Btb3—46 to 60 inches; strong brown (7.5YR 5/6) clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of some peds; strongly acid.

Range in Characteristics

Thickness of local alluvium over buried soil: 20 to 34 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and cobbles of various sedimentary rocks
Reaction: Strongly acid or moderately acid unless limed

Ap horizon:
Hue—5YR or 7.5YR
Value—3
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—0 to 10 percent

Bw horizon:
Hue—5YR or 7.5YR
Value—3 to 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam or silty clay loam
Content of rock fragments—0 to 10 percent

Ab horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—2 to 4
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 10 percent

Btb horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—3 to 6
Mottles—if they occur, in shades of brown, yellow, or red
Texture—silty clay loam, clay loam, or clay
Content of rock fragments—0 to 10 percent

Evard Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Blue Ridge Mountains; Copper Basin area
Position on the landform: Sloping to steep upland ridges and side slopes
Parent material: Residuum derived from igneous and metamorphic rocks, such as gneiss and schist
Slope range: 5 to 30 percent
Taxonomic class: Fine-loamy, oxidic, mesic Typic Hapludults

Typical Pedon

Evard loam, 15 to 30 percent slopes; 500 feet north of the Ducktown Elementary School, 300 feet east of U.S. Highway 68, at Ducktown:

A—0 to 5 inches; dark brown (10YR 3/3) loam; weak fine granular structure; very friable; common fine and medium roots; common flakes of mica; strongly acid; clear smooth boundary.
Bt1—5 to 10 inches; yellowish red (5YR 4/6) clay loam; weak fine subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; common flakes of mica; strongly acid; clear smooth boundary.
Bt2—10 to 22 inches; yellowish red (5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; common flakes of mica; strongly acid; clear smooth boundary.
BC—22 to 32 inches; reddish brown (5YR 4/4) loam; weak fine subangular blocky structure; very friable; few fine roots; common flakes of mica; strongly acid; clear smooth boundary.
C—32 to 60 inches; reddish brown (5YR 4/4) fine sandy loam; massive; very friable; many flakes of mica; 90 percent partially weathered or highly weathered gneiss and mica schist; very strongly acid.

Range in Characteristics

Thickness of the solum: 20 to more than 40 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles, cobbles, and stones of gneiss and schist
Reaction: Very strongly acid to moderately acid in unlimed areas

A horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—3 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 30 percent

Bt horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—clay loam, loam, or sandy clay loam
Content of rock fragments—0 to 15 percent

BC horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—4 to 8
Mottles—if they occur, in shades of red, brown, or yellow
Texture of the fine-earth fraction—loam, sandy loam, or fine sandy loam
Content of rock fragments—0 to 15 percent

C horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—4 to 8
Mottles—if they occur, in shades of red, brown, or yellow
Texture of the fine-earth fraction—loam, sandy loam, or fine sandy loam
Content of rock fragments—20 to 90 percent

Hamblen Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Nearly level flood plains
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Taxonomic class: Fine-loamy, siliceous, thermic Fluvaquentic Eutrochrepts

Typical Pedon

Hamblen silt loam, occasionally flooded; 1 mile southwest of Conasauga, 300 feet north of the Georgia State line, 0.3 mile east of the Bradley County (Tennessee) line:

Ap—0 to 9 inches; dark brown (10YR 4/3) silt loam; moderate medium granular structure; friable; many fine roots; few fine flakes of mica; slightly acid; clear smooth boundary.
Bw1—9 to 17 inches; dark yellowish brown (10YR 4/4) silt loam; few fine distinct grayish brown (10YR 5/2) and yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; many fine roots; few fine flakes of mica; slightly acid; gradual wavy boundary.
Bw2—17 to 28 inches; dark yellowish brown (10YR 4/4) clay loam; few fine distinct brown (10YR 5/3) and yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; common fine roots; few fine flakes of mica; moderately acid; gradual smooth boundary.
Bw3—28 to 46 inches; yellowish brown (10YR 5/6) clay loam; common fine and medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; few fine flakes of mica; moderately acid; gradual wavy boundary.
C—46 to 60 inches; mottled brown (10YR 5/3), yellowish brown (10YR 5/6), and light red (2.5YR 6/6) clay loam; massive; friable; few fine flakes of mica; moderately acid.

Range in Characteristics

Thickness of the solum: 20 to 55 inches
Depth to bedrock: More than 60 inches
Depth to dominant chroma of 2 or less: More than 20 inches
Size and kind of rock fragments: Pebbles of sedimentary rocks
Reaction: Strongly acid to neutral

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam
Content of rock fragments—0 to 5 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Mottles—in shades of brown, gray, yellow, or red; chroma of 2 or less within a depth of 24 inches

Texture—silt loam, loam, silty clay loam, or clay loam
Content of rock fragments—0 to 5 percent

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—1 to 6
Mottles—in shades of brown, gray, yellow or red; some horizons are mottled and have no dominant matrix color
Texture—silt loam, loam, or silty clay loam
Content of rock fragments—0 to 10 percent

Hayesville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Blue Ridge Mountains; Copper Basin area
Position on the landform: Sloping to steep upland ridges and side slopes
Parent material: Residuum derived from igneous and metamorphic rocks, such as granite, gneiss, and schist
Slope range: 5 to 30 percent
Taxonomic class: Clayey, kaolinitic, mesic Typic Kanhapludults

Typical Pedon

Hayesville loam, in an area of Evard-Hayesville complex, 5 to 15 percent slopes; 2 miles east of Ducktown on U.S. Highway 64, about 1.4 miles south of the intersection of Campbell Airport Road and U.S. Highway 64, about 300 feet past the Campbell Airport Road:

A—0 to 2 inches; brown (10YR 4/3) loam; moderate medium granular structure; very friable; common fine and medium roots; many flakes of mica; very strongly acid; abrupt smooth boundary.
E—2 to 5 inches; brown (7.5YR 4/4) loam; moderate medium granular and weak medium subangular blocky structure; friable; few fine roots; many flakes of mica; very strongly acid; abrupt smooth boundary.
BE—5 to 9 inches; yellowish red (5YR 5/6) clay loam; weak and moderate medium subangular blocky structure; friable; few fine roots; many flakes of mica; strongly acid; clear smooth boundary.
Bt1—9 to 22 inches; red (2.5YR 4/6) clay; strong and moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; few fine roots; many flakes of mica; strongly acid; clear smooth boundary.
Bt2—22 to 30 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; many flakes of mica; strongly acid; clear smooth boundary.
Bt3—30 to 36 inches; red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; many flakes of mica; strongly acid; clear smooth boundary.
BC—36 to 60 inches; red (2.5YR 4/8) loam; weak medium subangular blocky structure parting to massive; friable; few fine roots; many flakes of mica; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles, channers, cobbles, and flagstones of igneous and metamorphic rocks, such as granite, gneiss, and schist
Reaction: Extremely acid to slightly acid unless limed

A horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—2 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 15 percent

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of the fine-earth fraction—loam or sandy loam
Content of rock fragments—0 to 15 percent

BE horizon:
Hue—5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—loam or clay loam
Content of rock fragments—0 to 15 percent

Bt horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—6 or 8
Texture of the fine-earth fraction—clay or clay loam
Content of rock fragments—0 to 15 percent

BC horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—6 or 8
Texture of the fine-earth fraction—loam, sandy clay loam, or clay loam
Content of rock fragments—0 to 15 percent

Jeffrey Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Physiographic area: Higher elevations of the Southern Blue Ridge Mountains
Position on the landform: Moderately steep to very steep ridges and side slopes
Parent material: Residuum derived from arkosic sandstone, greywacke, phyllite, and slate
Slope range: 12 to 65 percent
Taxonomic class: Fine-loamy, mixed, mesic Umbric Dystrochrepts

Typical Pedon

Jeffrey channery loam, 12 to 35 percent slopes; 100 yards northeast of the fire tower on Little Frog Mountain:

A1—0 to 8 inches; very dark brown (10YR 2/2) channery loam; weak fine and medium granular structure; very friable; many fine and medium roots; 15 percent slate and arkosic sandstone channers; strongly acid; clear wavy boundary.
A2—8 to 11 inches; dark brown (10YR 3/3) channery loam; weak medium granular structure; very friable; many fine and medium roots; 15 percent arkosic sandstone and slate channers and gravel; strongly acid; clear wavy boundary.
Bw—11 to 22 inches; yellowish brown (10YR 5/4) cobbly loam; weak medium subangular blocky structure; friable; common fine and medium roots; 20 percent arkosic sandstone and slate cobbles and channers; strongly acid; clear smooth boundary.
C—22 to 28 inches; yellowish brown (10YR 5/4) very cobbly loam; massive; friable; 50 percent arkosic sandstone and slate cobbles and channers; strongly acid; clear wavy boundary.
R—28 inches; hard arkosic sandstone.

Range in Characteristics

Thickness of the solum: 20 to 35 inches
Depth to bedrock: 20 to 40 inches
Size and kind of rock fragments: Pebbles, channers, cobbles, and stones of arkosic sandstone, greywacke, phyllite, and slate
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR
Value—2 or 3
Chroma—2 or 3
Texture of the fine-earth fraction—loam
Content of rock fragments—5 to 30 percent

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—loam, sandy loam, or fine sandy loam
Content of rock fragments—10 to 30 percent

C horizon:
Hue—10YR
Value—4 or 5
Chroma—4 or 6
Texture of the fine-earth fraction—loam or fine sandy loam
Content of rock fragments—10 to 50 percent

R horizon:
Hard arkosic sandstone, greywacke, phyllite, or slate bedrock

Junaluska Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Blue Ridge Mountains
Position on the landform: Sloping to very steep ridgetops and side slopes
Parent material: Residuum derived from metasedimentary rocks, such as metasiltstone, phyllite, and slate
Slope range: 5 to 65 percent
Taxonomic class: Fine-loamy, mixed, mesic Typic Hapludults

Typical Pedon

This typical pedon is located in Cherokee County, North Carolina, at the type location for the official series description; west from Murphy on U.S. Highway 64 to State Road 1301, west to State Road 1302, northwest to State Road 1303, northeast to Forest Service Road 307, about 0.5 mile west of the intersection of Forest Service Road 307 and Forest

Service Road 6068 on Forest Service Road 307, about 0.1 mile south of Forest Service Road 307; on a 20-percent, southwest-facing, forested mountain side slope:

Oi—2 inches to 0; partially decomposed organic matter and deciduous leaves, twigs, and roots.
A1—0 to 2 inches; brown (7.5YR 5/4) fine sandy loam; weak medium granular structure; very friable; common fine, medium, and coarse roots; 5 percent, by volume, metasandstone channers; common fine mica flakes; extremely acid; clear wavy boundary.
A2—2 to 11 inches; strong brown (7.5YR 5/6) fine sandy loam; weak medium granular structure; very friable; common fine, medium, and coarse roots; 5 percent, by volume, metasandstone channers; common fine mica flakes; very strongly acid; clear wavy boundary.
Bt—11 to 21 inches; yellowish red (5YR 5/8) sandy clay loam; common coarse distinct red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; few medium roots; few faint clay films on faces of peds; 5 percent, by volume, metasandstone channers; common fine mica flakes; strongly acid; clear wavy boundary.
C/B—21 to 26 inches; thin, parallel layers of yellowish red (5YR 5/8) and red (2.5YR 4/8) fine sandy loam saprolite and sandy clay loam B material; saprolite is massive, B material has weak medium subangular blocky structure; friable; 5 percent, by volume, metasandstone channers; common fine mica flakes; strongly acid; clear irregular boundary.
Cr—26 to 31 inches; multicolored, weathered, low-grade metasandstone; partially consolidated, can be dug with difficulty with a spade.

Range in Characteristics

Thickness of the solum: 15 to 35 inches
Depth to soft bedrock: 20 to 40 inches
Depth to hard bedrock: More than 40 inches
Size and kind of rock fragments: Channers, flagstones, pebbles, and cobbles of metasiltstone, phyllite, and slate
Reaction: Extremely acid to moderately acid unless limed

A horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Texture of the fine-earth fraction—fine sandy loam
Content of rock fragments—0 to 35 percent

Bt horizon:
Hue—7.5YR or 5YR
Value—4 to 6
Chroma—4 or 6
Texture of the fine-earth fraction—loam, silt loam, or fine sandy loam
Content of rock fragments—0 to 35 percent

C/B horizon:
Hue—7.5YR to 2.5YR; sometimes multicolored
Value—4 to 8
Chroma—4 to 8
Texture of the fine-earth fraction—loam, silt loam, fine sandy loam, or loamy fine sand
Content of rock fragments—0 to 35 percent

Cr horizon:
Fractured and tilted metasiltstone, phyllite, or slate

Keener Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Blue Ridge Mountains
Position on the landform: Gently sloping to very steep footslopes, side slopes, benches, and alluvial or colluvial fans
Parent material: Colluvium and alluvium derived from metamorphosed sandstone, shale, and siltstone
Slope range: 3 to 65 percent
Taxonomic class: Fine-loamy, siliceous, mesic Typic Hapludults

Typical Pedon

Keener cobbly loam, in an area of Lostcove-Keener complex, 12 to 25 percent slopes, very stony; 2.7 miles south of Reliance on State Road 30, right 2.1 miles on U.S. Forest Service Road 77 to road intersection, left 2.5 miles on gravel road, 75 feet northeast of the road:

Oe—1 inch to 0; mixed hardwood leaves, pine needles, and twigs.
A—0 to 1 inch; very dark grayish brown (10YR 3/2) cobbly loam; weak medium granular structure; friable; common fine and medium roots; 30 percent sandstone cobbles and gravel; strongly acid; abrupt smooth boundary.
E—1 to 4 inches; brown (10YR 5/3) cobbly loam; weak medium granular structure; friable; common fine and medium roots; 20 percent sandstone cobbles and gravel; strongly acid; clear smooth boundary.
BE—4 to 13 inches; yellowish brown (10YR 5/6) cobbly loam; weak medium subangular blocky

structure; friable; few fine and medium roots; 20 percent sandstone cobbles and gravel; strongly acid; gradual smooth boundary.
Bt1—13 to 22 inches; strong brown (7.5YR 5/8) cobbly clay loam; moderate medium subangular blocky structure; friable; common distinct clay films on some ped faces; few fine and medium roots; 25 percent sandstone cobbles and gravel; strongly acid; gradual smooth boundary.
Bt2—22 to 37 inches; strong brown (7.5YR 5/6) cobbly clay loam; moderate medium subangular blocky structure; friable; common distinct clay films on faces of peds; few fine and medium roots; 25 percent sandstone cobbles and gravel; strongly acid; gradual smooth boundary.
Bt3—37 to 56 inches; strong brown (7.5YR 5/6) very cobbly clay loam; weak medium subangular blocky structure; friable; few fine and medium roots; 35 percent sandstone cobbles and gravel; few faint clay films on faces of peds; strongly acid; gradual smooth boundary.
BC—56 to 64 inches; strong brown (7.5YR 5/8) cobbly sandy loam; common medium distinct brown (10YR 5/3) and strong brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; 30 percent sandstone cobbles and gravel; few faint clay films on faces of rocks; strongly acid; gradual smooth boundary.
C—64 to 70 inches; strong brown (7.5YR 5/8) very cobbly sandy loam; massive; friable; 45 percent sandstone cobbles and gravel; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles, cobbles, and stones of slightly metamorphosed sandstone, shale, and siltstone
Reaction: Extremely acid to moderately acid unless limed

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—5 to 35 percent

E horizon:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture of the fine-earth fraction—loam, sandy loam, or fine sandy loam
Content of rock fragments—0 to 30 percent

BE horizon:
Hue—10YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—loam, sandy loam, or fine sandy loam
Content of rock fragments—0 to 30 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—6 or 8
Texture of the fine-earth fraction—loam, clay loam, or sandy clay loam
Content of rock fragments—0 to 30 percent

BC horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—6 or 8
Texture of the fine-earth fraction—loam, clay loam, or sandy loam
Mottles—in shades of yellow or brown
Content of rock fragments—10 to 50 percent

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—6 or 8
Texture of the fine-earth fraction—loam, clay loam, or sandy loam
Content of rock fragments—10 to 50 percent

Leadvale Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow or slow
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Gently sloping footslopes, toeslopes, and low stream terraces
Parent material: Local alluvium underlain by residuum derived from shale and siltstone
Slope range: 2 to 5 percent
Taxonomic class: Fine-silty, siliceous, thermic Typic Fragiudults

Typical Pedon

Leadvale silt loam, 2 to 5 percent slopes, rarely flooded; 0.2 mile east of U.S. Highway 411 and New Smyrna Road, 100 feet north of New Smyrna Road in a pastured area:

Ap—0 to 9 inches; brown (10YR 5/3) silt loam; weak medium granular structure; very friable; many fine

and medium roots; 10 percent shale channers; moderately acid; clear smooth boundary.
Bt1—9 to 14 inches; yellowish brown (10YR 5/6) silt loam; common medium distinct light yellowish brown (10YR 6/4) mottles; weak and moderate medium subangular blocky structure; very friable; common fine roots; 10 percent shale channers; few faint clay films on faces of peds; many black concretions; strongly acid; clear smooth boundary.
Bt2—14 to 22 inches; brownish yellow (10YR 6/6) silty clay loam; many medium prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; 10 percent shale channers; few faint clay films on faces of peds; strongly acid; clear wavy boundary.
Btx—22 to 31 inches; mottled yellowish brown (10YR 5/4), light gray (10YR 7/2), and brownish yellow (10YR 6/6) silty clay loam; many medium faint grayish brown (2.5YR 5/2) mottles; weak coarse platy structure parting to moderate medium subangular blocky; firm and brittle; 10 percent shale channers; many dark brown concretions; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.
BC—31 to 60 inches; mottled light yellowish brown (10YR 6/4), light gray (10YR 7/2), and yellowish red (5YR 5/8) silty clay loam; many medium faint light brownish gray (2.5YR 6/2) mottles; weak medium subangular blocky structure; firm; 10 percent shale channers; many dark brown and black concretions; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches
Depth to bedrock: More than 60 inches
Depth to fragipan: 16 to 38 inches
Size and kind of rock fragments: Channers and pebbles of shale or siltstone
Reaction: Very strongly acid or strongly acid unless limed

Ap horizon:
Hue—10YR
Value—4 to 6
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—0 to 10 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—6 or 8
Mottles—if they occur, generally in shades of brown or red; gray mottles are sometimes in a 3- to 5-inch zone directly above the fragipan
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 10 percent

Btx horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—4 to 8
Mottles—in shades of gray, yellow, or brown
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 10 percent

BC horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—2 to 8
Mottles—in shades of gray, yellow, or brown
Texture—silt loam, silty clay loam, or silty clay
Content of rock fragments—0 to 10 percent

Lostcove Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Blue Ridge Mountains
Position on the landform: Gently sloping to very steep lower side slopes and footslopes
Parent material: Colluvium
Slope range: 3 to 65 percent
Taxonomic class: Loamy-skeletal, siliceous, mesic Typic Hapludults
Taxadjunct statement: The Lostcove soils located along the western face of Starr and Chilhowee Mountains in Polk County are taxadjuncts to the series because they have more clay in the lower part of the subsoil than is defined as the range for the series. This difference, however, does not significantly affect use and management of the soils.

Typical Pedon

This typical pedon is located in McMinn County, on the western face of Starr Mountain; 4.5 miles north of the Polk-McMinn County line on U.S. Highway 411, about 1.75 miles east on State Road 310 from the intersection of State Road 310 and U.S. Highway 411, about 0.2 mile south on McMinn County Road 491, about 1.6 miles southeast on McMinn County Road 475, about 2.1 miles south on McMinn County Road 880, about 0.05 mile east on McMinn County Road 875, south about 1 mile on Bowater logging road with gate, on a roadbank on the east side of the road; USGS Mecca topographic quadrangle; lat. 35 degrees 18 minutes 08 seconds N. and 84 degrees 29 minutes 20 seconds W.:

Oi—1 inch to 0; slightly decomposed hardwood leaf litter and pine needles.
Oe—0 to 1 inch; moderately decomposed hardwood leaf litter and pine needles
A—1 to 5 inches; yellowish brown (10YR 5/6) gravelly loam; moderate medium granular structure; very friable; common fine and few coarse roots; 30 percent arkosic sandstone gravel; extremely acid; clear smooth boundary.
Bt1—5 to 19 inches; yellowish brown (10YR 5/8) very cobbly clay loam; weak medium subangular blocky structure; friable; few coarse roots; few distinct patchy clay films on faces of peds; 40 percent arkosic sandstone cobbles and gravel; very strongly acid; clear smooth boundary.
Bt2—19 to 50 inches; yellowish brown (10YR 5/8) very cobbly clay loam; common fine faint strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few coarse and few fine roots; few distinct patchy clay films on faces of peds; 40 percent arkosic sandstone cobbles and gravel; very strongly acid; clear smooth boundary.
2Bt3—50 to 76 inches; yellowish brown (10YR 5/8) very cobbly clay; many coarse distinct yellowish red (5YR 5/8) and common fine faint brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; friable; common distinct patchy clay films on faces of peds; 55 percent arkosic sandstone cobbles and gravel; very strongly acid.

Range in Characteristics

Thickness of the solum: 30 to more than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Cobbles and pebbles of arkosic sandstone
Reaction: Very strongly acid to moderately acid

A horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 40 percent

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—6 or 8
Mottles—if they occur, in shades of red, yellow, or brown
Texture of the fine-earth fraction—loam, sandy clay loam, clay loam, or clay
Content of rock fragments—35 to 70 percent

2Bt horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—6 or 8
Mottles—if they occur, in shades of red, yellow, or brown
Texture of the fine-earth fraction—clay or clay loam
Content of rock fragments—35 to 75 percent

McCamy Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Chilhowee and Starr Mountains on the western edge of the Southern Blue Ridge Mountains
Position on the landform: Sloping to very steep ridgetops and side slopes
Parent material: Residuum derived from arkosic sandstone interbedded with sandy shale
Slope range: 5 to 35 percent
Taxonomic class: Fine-loamy, siliceous, mesic Typic Hapludults

Typical Pedon

McCamy loam, 5 to 15 percent slopes; on Chilhowee Mountain, near the intersection of Benton Springs Road and Oswald Dome Road (Forest Service Road 77):

Oe—1 inch to 0; partially decomposed leaf litter.
A—0 to 2 inches; dark gray (10YR 4/1) loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.
EB—2 to 7 inches; light yellowish brown (10YR 6/4) loam; weak fine granular and subangular blocky structure; very friable; many fine and common medium roots; extremely acid; clear smooth boundary.
Bt—7 to 26 inches; yellowish brown (10YR 5/6) clay loam; weak medium subangular blocky structure; friable; few fine and medium roots; few faint clay films on faces of peds; extremely acid; clear smooth boundary.
Cr—26 to 38 inches; soft, brown and yellow arkosic sandstone; abrupt smooth boundary.
R—38 inches; hard arkosic sandstone

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches

Size and kind of rock fragments: Pebbles, channers, and stones of arkosic sandstone, quartzite, and shale
Reaction: Extremely acid to strongly acid

A horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—1 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 15 percent

EB horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture of the fine-earth fraction—loam, fine sandy loam, or sandy loam
Content of rock fragments—0 to 20 percent

Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—if they occur, in shades of red, brown, or yellow
Texture of the fine-earth fraction—loam, clay loam, or sandy clay loam; subhorizons having clayey textures are common below a depth of about 30 inches
Content of rock fragments—0 to 20 percent

Cr horizon:
Soft arkosic sandstone and sandy shale in shades of brown, yellow, or red

R horizon:
Hard arkosic sandstone

Minvale Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Sloping to steep side slopes, footslopes, and coves
Parent material: Colluvium derived from cherty limestone
Slope range: 5 to 25 percent
Taxonomic class: Fine-loamy, siliceous, thermic Typic Paleudults

Typical Pedon

Minvale gravelly silt loam, 5 to 12 percent slopes; 2.2 miles south of Old Fort on U.S. Highway 411, about 0.75 mile west of U.S. Highway 411 on Ladds Springs Road, 550 feet north of the road:

A—0 to 3 inches; dark grayish brown (10YR 4/2) gravelly silt loam; weak medium granular structure; very friable; common fine and medium roots; 20 percent chert gravel; strongly acid; abrupt smooth boundary.
E—3 to 13 inches; light yellowish brown (10YR 6/4) gravelly silt loam; moderate medium granular structure; friable; common fine and medium roots; 20 percent chert gravel; strongly acid; clear smooth boundary.
Bt1—13 to 21 inches; yellowish brown (10YR 5/6) gravelly silty clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine and medium roots; 25 percent chert gravel; strongly acid; clear smooth boundary.
Bt2—21 to 28 inches; strong brown (7.5YR 5/8) gravelly silty clay loam; common fine distinct yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; few faint clay films on faces of peds; few fine and medium roots; 15 percent chert gravel; strongly acid; gradual smooth boundary.
Bt3—28 to 39 inches; mottled yellowish red (5YR 5/6), strong brown (7.5YR 5/8), and yellowish brown (10YR 5/6) gravelly clay; moderate medium subangular and angular blocky structure; firm; common distinct clay films on faces of peds; 20 percent chert gravel; strongly acid; gradual wavy boundary.
Bt4—39 to 68 inches; mottled yellowish red (5YR 5/6), strong brown (7.5YR 5/8), yellowish brown (10YR 5/6), and very pale brown (10YR 7/3) very gravelly clay; moderate medium subangular and angular blocky structure; firm; common distinct clay films on faces of peds; 35 percent chert gravel; strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and cobbles of chert
Reaction: Very strongly acid or strongly acid in unlimed areas

A horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—10 to 35 percent

E horizon:
Hue—10YR
Value—5 or 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—15 to 35 percent

Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—in shades of red, brown, yellow, or gray; some horizons have no dominant matrix color
Texture of the fine-earth fraction—silty clay loam, silty clay, or clay
Content of rock fragments—15 to 35 percent

Needmore Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Sloping and moderately steep upland ridges and side slopes
Parent material: Calcareous shale residuum
Slope range: 5 to 25 percent
Taxonomic class: Fine, mixed, mesic Ultic Hapludalfs

Typical Pedon

Needmore silt loam, 5 to 12 percent slopes; 2 miles south of Ocoee on U.S. Highway 411 to Shed Road-Shady Springs Road, 1 mile north of Shady Springs Church:

A—0 to 4 inches; brown (10YR 5/3) silt loam; moderate medium granular structure; very friable; 5 percent shale channers; many fine roots; moderately acid; clear smooth boundary.
BE—4 to 7 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; 5 percent shale channers; few fine and medium roots; moderately acid; clear smooth boundary.
Bt1—7 to 16 inches; yellowish brown (10YR 5/6) silty clay; few fine faint yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; friable; 5 percent shale channers; few fine and medium roots; moderately acid; clear smooth boundary.
Bt2—16 to 22 inches; strong brown (7.5YR 5/8) clay; few medium distinct yellowish red (5YR 5/8) and few medium distinct pale brown (10YR 6/3) mottles; moderate medium subangular and angular blocky structure; firm; 5 percent shale channers; few fine roots; strongly acid; gradual smooth boundary.
C—22 to 29 inches; mottled yellowish brown (10YR 5/8) and grayish brown (10YR 5/2) very channery silty clay; massive; firm; 40 percent shale channers; moderately acid; abrupt irregular boundary.
Cr—29 to 34 inches; weathered, soft shale bedrock.

Range in Characteristics

Thickness of the solum: 18 to 38 inches
Depth to soft bedrock: 20 to 40 inches
Size and kind of rock fragments: Channers and pebbles of shale
Reaction: Strongly acid or moderately acid unless limed

A horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—5 to 35 percent

BE horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 or 6
Texture of the fine-earth fraction—silt loam or silty clay loam
Content of rock fragments—5 to 35 percent

Bt horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—4 to 8
Mottles—if they occur, in shades of red, yellow, or brown; some horizons have no dominant matrix color
Texture of the fine-earth fraction—silty clay or clay
Content of rock fragments—5 to 35 percent

C horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—4 to 8
Mottles—in shades of red, yellow, or brown; some horizons are mottled and have no dominant matrix color
Texture of the fine-earth fraction—silty clay or clay
Content of rock fragments—25 to 70 percent

Cr horizon:
Brown and yellow, soft, calcareous shale

Sequatchie Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Gently sloping stream terraces
Parent material: Alluvium
Slope range: 2 to 5 percent
Taxonomic class: Fine-loamy, siliceous, thermic Humic Hapludults
Taxadjunct statement: The Sequatchie soils in Polk County are taxadjuncts to the series because they have more weatherable minerals in the control section than is defined as the range for the series. This difference, however, does not significantly affect use and management of the soils.

Typical Pedon

Sequatchie silt loam, 2 to 5 percent slopes, rarely flooded; 400 yards north of U.S. Highway 64 bridge on the Ocoee River, 400 feet east of the riverbank:

Ap—0 to 9 inches; dark brown (10YR 3/3) silt loam; moderate medium granular structure; friable; few fine roots; many fine flakes of mica; moderately acid; abrupt smooth boundary.
Bt1—9 to 16 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; many fine flakes of mica; moderately acid; clear smooth boundary.
Bt2—16 to 27 inches; brown (7.5YR 4/4) clay loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; many fine flakes of mica; strongly acid; gradual smooth boundary.
BC—27 to 41 inches; brown (7.5YR 4/4) loam; weak medium subangular blocky structure; friable; many fine flakes of mica; strongly acid; abrupt smooth boundary.
C1—41 to 54 inches; dark yellowish brown (10YR 4/4) gravelly loam; massive; friable; 30 percent sandstone pebbles and cobbles; many fine flakes of mica; strongly acid; abrupt smooth boundary.
C2—54 to 68 inches; yellowish brown (10YR 5/6) fine sandy loam; loose; single grained; very friable; many fine flakes of mica; strongly acid.

Range in Characteristics

Thickness of the solum: 32 to 55 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and cobbles of sandstone
Reaction: Very strongly acid or strongly acid unless limed

Ap horizon:
Hue—7.5YR or 10YR
Value—3
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—0 to 10 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 or 6
Texture—loam, silt loam, or clay loam
Content of rock fragments—0 to 10 percent

BC horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 8
Texture—fine sandy loam, sandy loam, or loam
Content of rock fragments—0 to 10 percent

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Mottles—if they occur, in shades of yellow, brown, or red
Texture of the fine-earth fraction—fine sandy loam, sandy loam, or loam
Content of rock fragments—0 to 35 percent

Suches Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Physiographic area: Southern Blue Ridge Mountains; Copper Basin area
Position on the landform: Nearly level flood plains
Parent material: Alluvium
Slope range: 0 to 2 percent
Taxonomic class: Fine-loamy, mixed, mesic Fluventic Dystrochrepts

Typical Pedon

Suches loam, in an area of Arkaqua-Suches complex, occasionally flooded; 2 miles north of Harbuck on State Road 68, east 0.8 mile on road at Croft Chapel, 500 feet south of the road:

Ap—0 to 10 inches; dark brown (10YR 4/3) loam; moderate medium granular structure; friable; common fine and medium roots; moderately acid; abrupt smooth boundary.
Bw1—10 to 23 inches; yellowish brown (10YR 5/4) loam; few fine faint yellowish brown (10YR 5/6) mottles; moderate and weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear smooth boundary.
Bw2—23 to 31 inches; yellowish brown (10YR 5/4) loam; common medium distinct grayish brown (2.5YR 5/2) and few fine faint yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear smooth boundary.
Bg—31 to 41 inches; light brownish gray (2.5Y 6/2) loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear smooth boundary.
Cg—41 to 60 inches; light brownish gray (2.5Y 6/2) stratified loam and fine sandy loam; common medium distinct yellowish brown (10YR 5/6) mottles; massive; friable; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles of igneous and metamorphic rocks
Reaction: Strongly acid or moderately acid in unlimed areas

Ap horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 4
Texture—loam
Content of rock fragments—0 to 5 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Mottles—in shades of brown or yellow in the upper part; in shades of brown, yellow, gray, or olive in the lower part
Texture of the fine-earth fraction—loam or silty clay loam
Content of rock fragments—0 to 5 percent

Bg horizon:
Hue—7.5YR to 2.5Y
Value—3 to 7
Chroma—1 or 2
Mottles—in shades of red, brown, gray, or olive
Texture—loam or sandy clay loam
Content of rock fragments—0 to 5 percent

Cg horizon:
Hue—7.5YR to 2.5Y or is neutral
Value—4 to 7
Chroma—0 to 2
Mottles—in shades of red, brown, yellow, gray, or olive
Texture of the fine-earth fraction—generally stratified loam, silt loam, or fine sandy loam
Content of rock fragments—0 to 35 percent

Talbott Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Moderately steep to very steep upland ridges and side slopes
Parent material: Limestone residuum
Slope range: 12 to 50 percent
Taxonomic class: Fine, mixed, thermic Typic Hapludalfs

Typical Pedon

Talbott silt loam, in an area of Talbott-Rock outcrop complex, 12 to 50 percent slopes; 0.5 mile southwest of the intersection of Old Oak Grove Road and Oak Grove Road east of Benton, 100 feet southeast of Old Oak Grove Road:

Ap—0 to 4 inches; dark brown (10YR 4/3) silt loam; moderate medium granular structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.
Bt1—4 to 8 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; common fine and medium roots; strongly acid; clear smooth boundary.
Bt2—8 to 17 inches; strong brown (7.5YR 5/8) clay; common medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; plastic; common distinct clay films on faces of peds; few fine roots; strongly acid; gradual wavy boundary.
Bt3—17 to 24 inches; strong brown (7.5YR 5/6) clay; strong medium subangular blocky structure; very firm; plastic; common distinct clay films on faces of peds; few fine roots; moderately acid; clear wavy boundary.

Bt4—24 to 35 inches; yellowish brown (10YR 5/8) clay; moderate medium angular blocky structure; very firm; plastic; common distinct clay films on faces of peds; slightly acid; abrupt wavy boundary.
R—35 inches; hard limestone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Size and kind of rock fragments: Pebbles of chert and limestone
Reaction: Dominantly strongly acid to slightly acid; horizons near the bedrock range to slightly alkaline

Ap horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—0 to 5 percent

Bt horizon:
Hue—2.5YR to 10YR
Value—4 or 5
Chroma—4 to 8
Mottles—if they occur, in shades of yellow or brown
Texture—silty clay loam, silty clay, or clay
Content of rock fragments—0 to 5 percent

R horizon:
Hard limestone bedrock

Tate Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Blue Ridge Mountains; Copper Basin area
Position on the landform: Gently sloping and sloping stream terraces, footslopes, toeslopes, and fans
Parent material: Alluvium and colluvium derived from igneous and metamorphic rocks, such as mica schist, mica gneiss, and granite
Slope range: 2 to 8 percent
Taxonomic class: Fine-loamy, mixed, mesic Typic Hapludults

Typical Pedon

Tate loam, 2 to 8 percent slopes; 1.15 miles north of Postelle to the Louisville and Nashville railroad crossing, left 0.45 mile on a gravel road, 300 feet south of the gravel road, in an open field:

Ap—0 to 10 inches; brown (10YR 4/3) loam; weak medium granular structure; friable; moderately acid; clear smooth boundary.
BA—10 to 15 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable; strongly acid; clear smooth boundary.
Bt1—15 to 34 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; strongly acid; clear smooth boundary.
Bt2—34 to 44 inches; yellowish brown (10YR 5/4) clay loam; common medium faint pale brown (10YR 6/3) mottles; weak fine subangular blocky structure; friable; few faint clay films on faces of peds; strongly acid; clear smooth boundary.
C—44 to 60 inches; mottled yellowish brown (10YR 5/6), brown (10YR 5/3), and light yellowish brown (10YR 6/4) sandy clay loam; massive; friable; very strongly acid.

Range in Characteristics

Thickness of the solum: 30 to more than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and cobbles of igneous and metamorphic rocks, such as mica schist, mica gneiss, and granite
Reaction: Very strongly acid to slightly acid in unlimed areas

Ap horizon:
Hue—10YR
Value—3 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 35 percent

BA horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—loam or sandy clay loam
Content of rock fragments—0 to 35 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—clay loam, sandy clay loam, or loam
Content of rock fragments—0 to 35 percent

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 8

Texture of the fine-earth fraction—sandy clay loam, loam, or clay loam
Content of rock fragments—5 to 60 percent

Toccoa Series

Depth class: Very deep
Drainage class: Well drained or moderately well drained
Permeability: Moderately rapid
Physiographic area: Southern Blue Ridge Mountains; Southern Appalachian Ridges and Valleys
Position on the landform: Nearly level or gently sloping flood plains
Parent material: Alluvium derived from igneous, metamorphic, and metasedimentary rocks
Slope range: 0 to 4 percent
Taxonomic class: Coarse-loamy, mixed, nonacid, thermic Typic Udifluvents

Typical Pedon

Toccoa loam, 0 to 4 percent slopes, rarely flooded; 1 mile south of the intersection of U.S. Highway 411 and the Hiwassee River, 1.5 miles west on a farm road, 0.25 mile west along the Hiwassee River, 400 feet south of the river:

Ap—0 to 10 inches; dark yellowish brown (10YR 3/4) loam; moderate medium granular structure; very friable; many fine flakes of mica; slightly acid; abrupt smooth boundary.
C—10 to 26 inches; dark yellowish brown (10YR 4/4) loam; massive; very friable; few fine roots; many fine flakes of mica; moderately acid; gradual wavy boundary.
Ab—26 to 34 inches; dark brown (10YR 3/3) loam; massive; friable; few fine roots; many fine flakes of mica; moderately acid; gradual wavy boundary.
Bwb—34 to 48 inches; dark yellowish brown (10YR 3/4) loam; weak fine granular structure; friable; few fine roots; many fine flakes of mica; moderately acid; gradual wavy boundary.
Cb—48 to 60 inches; dark yellowish brown (10YR 4/4) loam; common fine distinct very dark grayish brown (10YR 3/2) mottles; massive; friable; many fine flakes of mica; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Mica flakes: Few to many throughout the profile
Depth to mottles with chroma of 2 or less: More than 20 inches
Reaction: Strongly acid to slightly acid

A horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—2 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 10 percent

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—if they occur, in shades of brown or gray
Texture of the fine-earth fraction—dominantly loam, sandy loam, or loamy sand; if they occur, textures of silt loam and silty clay loam are generally below a depth of about 40 inches
Content of rock fragments—0 to 10 percent

Ab horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—loam or sandy loam
Content of rock fragments—0 to 10 percent

Bwb horizon:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—4 or 6
Mottles—in shades of brown or red
Texture of the fine-earth fraction—loam, sandy loam, loamy sand, silt loam, or silty clay loam
Content of rock fragments—0 to 10 percent

Cb horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Mottles—in shades of brown or gray
Texture of the fine-earth fraction—loam, sandy loam, loamy sand, silt loam, or silty clay loam
Content of rock fragments—0 to 10 percent

Tsali Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Blue Ridge Mountains
Position on the landform: Very steep ridges and side slopes
Parent material: Residuum derived from metasedimentary rocks, such as phyllite, slate, metasandstone, and metasiltstone
Slope range: 35 to 65 percent

Taxonomic class: Loamy, mixed, mesic, shallow Typic Hapludults

Typical Pedon

This typical pedon is located in Graham County, North Carolina, at the type location for the official series description; west from Bryson City on U.S. Highway 19 to State Road 28, north on State Road 28 to Tsali Campground (Swain-Graham County line), 1 mile north on a trail, 150 feet east of the trail; on a 24-percent, northwest-facing, forested mountain side slope:

Oi—1 inch to 0; fresh hardwood leaf litter and pine needles.

A—0 to 8 inches; yellowish brown (10YR 5/6) channery loam, light yellowish brown (10YR 6/4) dry; weak fine granular structure; very friable; common fine and medium roots; few fine flakes of mica; 20 percent, by volume, metasandstone channers; very strongly acid; clear wavy boundary.

Bt1—8 to 13 inches; yellowish red (5YR 5/8) channery loam; few fine distinct reddish brown (5YR 5/3) mottles; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; few medium and coarse roots; few faint clay films on faces of peds; few fine flakes of mica; 16 percent, by volume, metasandstone channers; very strongly acid; gradual wavy boundary.

Bt2—13 to 18 inches; yellowish red (5YR 5/6) channery clay loam; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; few coarse roots; few faint clay films on faces of peds; few fine flakes of mica; common pockets of dark yellowish brown (10YR 4/4) saprolite having a texture of sandy loam; 16 percent, by volume, metasandstone channers; extremely acid; clear irregular boundary.

Cr—18 to 60 inches; multicolored, weathered, fractured, thinly bedded metasandstone; a few moderately thin seams of yellowish red (5YR 5/6) loam; partially consolidated, can be dug with difficulty with a spade.

Range in Characteristics

Thickness of the solum: 10 to 20 inches
Depth to soft bedrock: 10 to 20 inches
Depth to hard bedrock: More than 30 inches
Size and kind of rock fragments: Channers and flagstones of phyllite, slate, metasiltstone, and metasandstone
Reaction: Extremely acid to moderately acid

A horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—3 to 8
Texture of the fine-earth fraction—loam
Content of rock fragments—10 to 35 percent

Bt horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—loam, clay loam, or sandy clay loam
Content of rock fragments—10 to 35 percent

Cr horizon:
Multicolored, weathered, fractured metasedimentary rocks, such as phyllite, slate, and thinly bedded metasandstone

Tusquitee Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Southern Blue Ridge Mountains
Position on the landform: Steep and very steep side slopes and footslopes and coves
Parent material: Colluvium derived from metasedimentary and metamorphic rocks
Slope range: 20 to 65 percent
Taxonomic class: Fine-loamy, mixed, mesic Umbric Dystrochrepts

Typical Pedon

Tusquitee loam, 20 to 65 percent slopes; about 1.1 miles southwest of Stratton Gap on a Forest Service road:

Oe—1 inch to 0; highly decomposed leaf litter, roots, and twigs.

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; many fine and medium roots; 10 percent quartzite and sandstone gravel; very strongly acid; clear smooth boundary.

A2—4 to 8 inches; dark brown (10YR 3/3) loam; moderate fine granular structure; friable; common fine roots; 10 percent quartzite and sandstone gravel; very strongly acid; clear smooth boundary.

Bw1—8 to 26 inches; dark yellowish brown (10YR 4/6) loam; weak medium subangular blocky structure; friable; few fine roots; 10 percent quartzite and sandstone gravel; very strongly acid; clear smooth boundary.

Bw2—26 to 42 inches; yellowish brown (10YR 5/6) gravelly loam; weak medium subangular blocky

structure; friable; few fine roots; 15 percent quartzite and sandstone gravel; very strongly acid; gradual smooth boundary.
BC—42 to 60 inches; dark yellowish brown (10YR 4/6) gravelly loam; weak fine and medium subangular blocky structure; friable; few fine roots; 25 percent quartzite and sandstone gravel; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles, cobbles, and stones of quartzite, sandstone, phyllite, and metasedimentary rocks
Reaction: Very strongly acid to moderately acid

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 25 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of the fine-earth fraction—loam, sandy loam, or fine sandy loam
Content of rock fragments—5 to 35 percent

BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Mottles—if they occur, in shades of brown, yellow, or red
Texture of the fine-earth fraction—loam, fine sandy loam, or sandy loam
Content of rock fragments—15 to 60 percent

Udifluvents

Depth class: Very deep
Drainage class: Well drained or somewhat excessively drained
Permeability: Moderately rapid or rapid
Physiographic area: Southern Blue Ridge Mountains; Copper Basin area
Position on the landform: Nearly level and gently sloping flood plains
Parent material: Alluvium derived from soils and substratum material overlying igneous, metamorphic, and metasedimentary rocks
Slope range: 0 to 4 percent
Taxonomic class: Udifluvents

Typical Pedon

Udifluvents sandy loam, in an area of Udifluvents, loamy and sandy, frequently flooded; in the Copper Basin area; northeast of McCallister Hill, 0.3 mile on Potato Creek Road, 300 feet northeast of the road in an open field:

Ap—0 to 6 inches; strong brown (7.5YR 5/6) sandy loam; weak coarse granular structure; very friable; few fine roots; many medium and coarse flakes of mica; very strongly acid; clear smooth boundary.
C1—6 to 28 inches; strong brown (7.5YR 4/6) loamy sand; single grained; loose; few fine roots; many medium and coarse flakes of mica; very strongly acid; clear smooth boundary.
C2—28 to 36 inches; brown (10YR 4/3) coarse loamy sand; common medium distinct brown (10YR 5/3) mottles; single grained; loose; few fine roots; many medium and coarse flakes of mica; very strongly acid; abrupt smooth boundary.
Ab1—36 to 44 inches; dark grayish brown (2.5Y 4/2) loam; weak medium granular structure; friable; common fine and medium roots; many fine and medium flakes of mica; moderately acid; clear wavy boundary.
Ab2—44 to 48 inches; very dark grayish brown (2.5Y 3/2) silt loam; common medium distinct light olive brown (2.5Y 5/4) mottles; weak medium granular structure; friable; common fine and medium roots; many fine and medium flakes of mica; slightly acid; clear wavy boundary.
Cb—48 to 60 inches; dark grayish brown (2.5Y 5/4) gravelly sandy loam; common medium distinct light brownish gray (2.5Y 6/2) mottles; single grained; loose; many fine and medium flakes of mica; 25 percent gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 72 inches
Mica flakes: Few to many throughout the profile
Depth to mottles with chroma of 2 or less: More than 20 inches
Reaction: Extremely acid to moderately acid in unlimed areas

A horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture of the fine-earth fraction—sandy loam
Content of rock fragments—0 to 10 percent

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Mottles—if they occur, in shades of brown or gray
Texture of the fine-earth fraction—loam, sandy loam, or loamy sand
Content of rock fragments—0 to 15 percent

Ab horizon:
Hue—10YR or 2.5Y
Value—3 or 4
Chroma—2 or 3
Texture of the fine-earth fraction—silt loam, loam, or sandy loam
Content of rock fragments—0 to 10 percent

Cb horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—1 to 6
Mottles—in shades of brown or gray
Texture of the fine-earth fraction—loam, sandy loam, or loamy sand
Content of rock fragments—0 to 60 percent

Unicoi Series

Depth class: Shallow
Drainage class: Excessively drained
Permeability: Moderately rapid
Physiographic area: Chilhowee and Starr Mountains, along the western edge of the Southern Blue Ridge Mountains
Position on the landform: Moderately steep to very steep ridgetops, shoulder slopes, and side slopes
Parent material: Arkosic sandstone residuum
Slope range: 15 to 65 percent
Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Dystrochrepts

Typical Pedon

Unicoi gravelly loam, in an area of Unicoi-Rock outcrop complex, 15 to 35 percent slopes; 2.9 miles south of the fire tower on Chilhowee Mountain, on Forest Service Road 77:

A—0 to 3 inches; very dark grayish brown (10YR 3/2) gravelly loam; moderate medium granular structure; very friable; many fine and medium roots; 25 percent sandstone gravel and cobbles; strongly acid; clear smooth boundary.
Bw—3 to 9 inches; dark yellowish brown (10YR 4/4) very cobbly loam; weak fine subangular blocky structure; very friable; common fine and medium roots; 35 percent sandstone cobbles and gravel; strongly acid; clear smooth boundary.
BC—9 to 17 inches; yellowish brown (10YR 5/4) very cobbly fine sandy loam; weak fine subangular blocky structure; very friable; few fine and medium roots; 45 sandstone cobbles and gravel; strongly acid; clear smooth boundary.
R—17 inches; hard arkosic sandstone.

Range in Characteristics

Thickness of the solum: 7 to 20 inches
Depth to bedrock: 7 to 20 inches
Size and kind of rock fragments: Pebbles, cobbles, and stones of arkosic sandstone and quartzite
Reaction: Extremely acid to strongly acid

A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 50 percent

Bw and BC horizons:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture of the fine-earth fraction—loam, fine sandy loam, or sandy loam
Content of rock fragments—35 to 65 percent

R horizon:
Hard arkosic sandstone

Wallen Series

Depth class: Moderately deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Physiographic area: Southwestern portion of the Southern Appalachian Ridges and Valleys
Position on the landform: Moderately steep to very steep ridgetops and side slopes
Parent material: Material weathered from fine grained sandstone, siltstone, and shale
Slope range: 15 to 65 percent
Taxonomic class: Loamy-skeletal, siliceous, mesic Typic Dystrochrepts

Typical Pedon

Wallen channery sandy loam, 15 to 65 percent slopes; 5 miles north of the intersection of U.S. Highway 411 and Ball Play Road at Conasauga, on Ball Play (Cookson Creek) Road:

Oe—1 inch to 0; highly decomposed leaves and twigs.
A—0 to 4 inches; brown (10YR 4/3) channery sandy loam; weak fine granular structure; very friable; common fine and medium roots; 25 percent sandstone channers and gravel; strongly acid; gradual smooth boundary.
E—4 to 8 inches; light yellowish brown (10YR 6/4) very channery fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; 35 percent sandstone channers and gravel; strongly acid, gradual smooth boundary.
Bw1—8 to 22 inches; light yellowish brown (10YR 6/4) very channery fine sandy loam; weak fine subangular blocky structure; very friable; common fine roots; 40 percent sandstone channers and gravel; strongly acid; gradual smooth boundary.
Bw2—22 to 30 inches; brownish yellow (10YR 6/6) very channery sandy loam; weak fine subangular blocky structure; very friable; few fine roots; 50 percent sandstone channers and gravel; strongly acid; abrupt smooth boundary.
R—30 inches; hard sandstone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Size and kind of rock fragments: Pebbles, channers, and stones of sandstone, siltstone, and shale
Reaction: Extremely acid to moderately acid in unlimed areas

A horizon:
Hue—10YR
Value—4 to 6
Chroma—2 or 3
Texture of the fine-earth fraction—sandy loam
Content of rock fragments—15 to 35 percent

E horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—loam, sandy loam, or fine sandy loam
Content of rock fragments—15 to 35 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 or 6
Texture of the fine-earth fraction—loam, fine sandy loam, or sandy loam
Content of rock fragments—35 to 70 percent

R horizon:
Hard, acid sandstone

Waynesboro Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Gently sloping to moderately steep upland stream terraces
Parent material: Old alluvium
Slope range: 2 to 25 percent
Taxonomic class: Clayey, kaolinitic, thermic Typic Paleudults

Typical Pedon

Waynesboro loam, 2 to 5 percent slopes, eroded; 3.3 miles south of the intersection of Hiwassee River and U.S. Highway 411, about 0.65 mile west along a farm road, 275 feet south of the farm road:

Ap—0 to 7 inches; brown (7.5YR 4/4) loam; weak medium granular structure; very friable; common fine roots; 5 percent sandstone pebbles; moderately acid; clear smooth boundary.
Bt1—7 to 11 inches; red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine roots; 5 percent sandstone pebbles; strongly acid; clear smooth boundary.
Bt2—11 to 29 inches; dark red (2.5YR 3/6) clay; strong medium subangular blocky structure; friable; common distinct clay films on faces of peds; few fine roots; 5 percent sandstone pebbles; strongly acid; gradual smooth boundary.
Bt3—29 to 72 inches; dark red (2.5YR 3/6) clay; moderate medium angular blocky structure; firm; common distinct clay films on faces of peds; strongly acid; clear smooth boundary.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles and cobbles of chert and sandstone
Reaction: Very strongly acid or strongly acid in unlimed areas

Ap horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—3 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 15 percent

Bt horizon:
Hue—2.5YR or 5YR

Value—3 to 5
Chroma—3 to 8
Mottles—if they occur, in shades of red, yellow, or brown
Texture of the fine-earth fraction—clay or clay loam
Content of rock fragments—0 to 15 percent

Whitwell Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Physiographic area: Southern Appalachian Ridges and Valleys
Position on the landform: Nearly level and gently sloping, low stream terraces
Parent material: Mixed alluvium
Slope range: 0 to 3 percent
Taxonomic class: Fine-loamy, siliceous, thermic Aquic Hapludults
Taxadjunct statement: The Whitwell soils in Polk County are taxadjuncts to the series because they have a higher content of weatherable minerals in the control section than is defined as the range for the series. This difference, however, does not significantly affect use and management of the soils.

Typical Pedon

Whitwell loam, 0 to 3 percent slopes, occasionally flooded; 700 feet west of the intersection of U.S. Highway 411 and Browder Road, 200 feet south of Browder Road, in a cultivated field:

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) loam; weak medium granular structure; very friable; many fine roots; moderately acid; clear smooth boundary.
Bt1—8 to 16 inches; yellowish brown (10YR 5/6) clay loam; few medium and coarse distinct dark brown (10YR 3/3) and few fine distinct pale brown (10YR 6/3) mottles; moderate medium subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; strongly acid; clear smooth boundary.
Bt2—16 to 25 inches; yellowish brown (10YR 5/6) clay loam; few fine distinct light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; strongly acid; gradual smooth boundary.
Bt3—25 to 32 inches; yellowish brown (10YR 5/6) clay loam; common fine and medium distinct light brownish gray (10YR 6/2) and common fine and medium distinct reddish yellow (7.5YR 6/8) mottles; moderate medium subangular blocky structure; friable; common fine roots; few faint clay films on faces of peds; strongly acid; gradual smooth boundary.
Bt4—32 to 38 inches; brownish yellow (10YR 6/6) clay loam; many medium and large distinct light gray (7.5YR 7/1) and many medium and large distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; strongly acid; clear smooth boundary.
BC—38 to 44 inches; yellowish brown (10YR 5/4) loam; many fine and medium distinct light gray (7.5YR 7/0) and common fine distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; strongly acid; gradual smooth boundary.
C—44 to 60 inches; yellowish brown (10YR 5/4) gravelly loam; common fine distinct gray (10YR 6/1) mottles; massive; friable; 30 percent sandstone gravel; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: More than 60 inches
Size and kind of rock fragments: Pebbles of sandstone and quartzite
Depth to mottles with chroma of 2 or less: Within 30 inches of the surface
Reaction: Very strongly acid or strongly acid in unlimed areas

Ap horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—2 to 4
Texture—loam
Content of rock fragments—0 to 5 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—in shades of brown, yellow, red, or gray
Texture—clay loam or loam
Content of rock fragments—0 to 5 percent

BC horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 8
Mottles—in shades of brown, yellow, red, or gray
Texture of the fine-earth fraction—loam or sandy loam
Content of rock fragments—0 to 15 percent

C horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—3 to 8
Mottles—in shades of gray or brown; some horizons are mottled and have no dominant matrix color
Texture of the fine-earth fraction—loam or sandy loam
Content of rock fragments—0 to 30 percent

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Glossary

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 2
Low	2 to 4
Moderate	4 to 6
High	more than 6

Backslope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Backslopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic).—Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated).—Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand.

A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are

depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are

many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 5 percent
Sloping	5 to 12 percent
Moderately steep	12 to 20 percent
Steep	20 to 30 percent
Very steep	30 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stream terrace. An alluvial deposit, generally on a bench or steplike surface. Stream terraces are above the elevation of the current flood plain.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide

vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any soil horizon (A, E, AB, BA, BE, or EB) directly below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill; part of a footslope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1951-84 at Copperhill, Tennessee.)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January--	47.8	25.8	36.8	69	0	26	5.33	3.20	7.23	9	1.3
February-	52.0	27.8	39.9	74	5	26	5.38	2.72	7.68	8	1.5
March----	59.7	34.4	47.1	81	15	80	6.54	4.02	8.80	9	.7
April----	70.8	42.7	56.8	88	26	220	5.22	3.10	7.11	8	.0
May------	78.5	50.7	64.6	91	33	453	4.70	2.80	6.39	9	.0
June-----	85.1	58.6	71.9	96	42	657	4.32	2.60	5.85	8	.0
July-----	88.1	63.2	75.7	97	51	797	5.39	3.13	7.40	9	.0
August---	87.6	62.2	74.9	97	51	772	4.74	2.68	6.55	8	.0
September	82.0	55.7	68.9	94	38	567	4.35	1.88	6.45	7	.0
October--	72.0	43.2	57.6	87	25	251	3.27	1.51	4.81	5	.0
November-	60.4	34.1	47.3	79	16	54	4.39	2.78	5.84	7	.2
December-	51.6	28.7	40.2	71	7	36	5.37	2.79	7.62	8	.7
Yearly:											
Average	69.6	43.9	56.8	---	---	---	---	---	---	---	---
Extreme	---	---	---	99	-1	---	---	---	---	---	---
Total--	---	---	---	---	---	3,939	59.00	52.16	66.04	95	4.4

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1951-84 at Copperhill, Tennessee.)

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than	Apr. 7	Apr. 20	May 8
2 years in 10 later than	Apr. 1	Apr. 15	May 2
5 years in 10 later than	Mar. 19	Apr. 7	Apr. 21
First freezing temperature in fall:			
1 year in 10 earlier than	Oct. 27	Oct. 20	Oct. 7
2 years in 10 earlier than	Oct. 31	Oct. 24	Oct. 11
5 years in 10 earlier than	Nov. 9	Nov. 1	Oct. 19

Table 3.--Growing Season

(Recorded in the period 1951-84 at Copperhill, Tennessee.)

Probability	Daily minimum temperature during growing season		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	216	191	160
8 years in 10	223	197	167
5 years in 10	235	208	180
2 years in 10	247	219	193
1 year in 10	253	224	200

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AnC2	Apison silt loam, 5 to 12 percent slopes, eroded	766	0.3
ApC2	Apison-Armuchee complex, 5 to 12 percent slopes, eroded	7,284	2.6
ApD2	Apison-Armuchee complex, 12 to 25 percent slopes, eroded	3,244	1.1
Ar	Arkaqua-Suches complex, occasionally flooded	1,386	0.5
AuC2	Armuchee channery silt loam, 5 to 12 percent slopes, eroded	732	0.3
AuD2	Armuchee channery silt loam, 12 to 25 percent slopes, eroded	489	0.2
AuE	Armuchee channery silt loam, 25 to 50 percent slopes	490	0.2
BrC	Brevard loam, 5 to 15 percent slopes	854	0.3
BrD	Brevard loam, 15 to 25 percent slopes	1,803	0.6
BrE	Brevard loam, 25 to 45 percent slopes	974	0.3
CaF	Cataska-Rock outcrop complex, 35 to 65 percent slopes	5,491	1.9
CaG	Cataska-Rock outcrop complex, 65 to 90 percent slopes	5,076	1.8
CcD	Citico channery silt loam, 15 to 35 percent slopes	6,219	2.2
CcF	Citico channery silt loam, 35 to 65 percent slopes	2,166	0.8
CoC2	Collegedale silt loam, 5 to 12 percent slopes, eroded	3,165	1.1
CoD2	Collegedale silt loam, 12 to 25 percent slopes, eroded	373	0.1
DeB2	Decatur silt loam, 2 to 5 percent slopes, eroded	573	0.2
DeC2	Decatur silt loam, 5 to 12 percent slopes, eroded	2,595	0.9
DeD2	Decatur silt loam, 12 to 20 percent slopes, eroded	715	0.3
DtD	Ditney loam, 12 to 35 percent slopes	1,980	0.7
DtF	Ditney loam, 35 to 65 percent slopes	6,774	2.4
Ea	Emory silt loam, 0 to 4 percent slopes, occasionally flooded	2,202	0.8
EdC	Evard loam, 5 to 15 percent slopes	488	0.2
EdD	Evard loam, 15 to 30 percent slopes	1,159	0.4
ErC	Evard-Hayesville complex, 5 to 15 percent slopes	8,485	3.0
ErD	Evard-Hayesville complex, 15 to 30 percent slopes	14,832	5.2
EvC	Evard-Hayesville complex, 5 to 15 percent slopes, gullied	1,478	0.5
EvD	Evard-Hayesville complex, 15 to 30 percent slopes, gullied	2,209	0.8
GeC	Gullied land-Evard complex, 5 to 15 percent slopes	2,477	0.9
GeD	Gullied land-Evard complex, 15 to 30 percent slopes	4,966	1.8
GuE	Gullied land, 5 to 35 percent slopes	2,993	1.1
Ha	Hamblen silt loam, occasionally flooded	3,698	1.3
JeD	Jeffrey channery loam, 12 to 35 percent slopes	1,131	0.4
JeF	Jeffrey channery loam, 35 to 65 percent slopes	4,649	1.6
JkD	Junaluska fine sandy loam, 15 to 35 percent slopes	1,066	0.4
JkF	Junaluska fine sandy loam, 35 to 65 percent slopes	49,484	17.5
JnC	Junaluska-Brasstown complex, 5 to 15 percent slopes	382	0.1
JnD	Junaluska-Brasstown complex, 15 to 35 percent slopes	16,169	5.7
JtF	Junaluska-Citico complex, 35 to 65 percent slopes	12,402	4.4
JuF	Junaluska-Tsali complex, 35 to 65 percent slopes	11,583	4.1
KeC	Keener loam, 3 to 12 percent slopes	2,336	0.8
KeD	Keener loam, 12 to 25 percent slopes	2,962	1.0
LeB	Leadvale silt loam, 2 to 5 percent slopes, rarely flooded	1,171	0.4
LkC	Lostcove-Keener complex, 3 to 12 percent slopes, stony	2,061	0.7
LkD	Lostcove-Keener complex, 12 to 25 percent slopes, very stony	4,252	1.5
LkF	Lostcove-Keener complex, 25 to 65 percent slopes, very stony	5,491	1.9
McC	McCamy loam, 5 to 15 percent slopes	341	0.1
McD	McCamy loam, 15 to 35 percent slopes	1,793	0.6
MnC	Minvale gravelly silt loam, 5 to 12 percent slopes	2,728	1.0
MnD	Minvale gravelly silt loam, 12 to 25 percent slopes	1,864	0.7
NeC	Needmore silt loam, 5 to 12 percent slopes	2,438	0.9
NeD	Needmore silt loam, 12 to 25 percent slopes	2,255	0.8
SeB	Sequatchie silt loam, 2 to 5 percent slopes, rarely flooded	2,762	1.0
Sm	Slickens	518	0.2
Su	Suches loam, occasionally flooded	3,543	1.3
TaE	Talbott-Rock outcrop complex, 12 to 50 percent slopes	446	0.2
TeB	Tate loam, 2 to 8 percent slopes	951	0.3
To	Toccoa loam, 0 to 4 percent slopes, rarely flooded	3,260	1.2
TuF	Tusquitee loam, 20 to 65 percent slopes	15,098	5.3
Ud	Udifluvents, loamy and sandy, frequently flooded	1,067	0.4
UnD	Unicoi-Rock outcrop complex, 15 to 35 percent slopes	599	0.2
UnF	Unicoi-Rock outcrop complex, 35 to 65 percent slopes	5,043	1.8

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
W	Water	2,900	1.0
WaF	Wallen channery sandy loam, 15 to 65 percent slopes	5,398	1.9
WbB2	Waynesboro loam, 2 to 5 percent slopes, eroded	3,063	1.1
WbC2	Waynesboro loam, 5 to 12 percent slopes, eroded	9,171	3.2
WbD2	Waynesboro loam, 12 to 25 percent slopes, eroded	2,950	1.0
WbD3	Waynesboro clay loam, 12 to 25 percent slopes, severely eroded	710	0.3
Wt	Whitwell loam, 0 to 3 percent slopes, occasionally flooded	727	0.3
	Total	282,900	100.0*

* Because of rounding, the total of the percentages shown actually exceeds 100.0 percent.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Pasture	Wheat
		Bu	Tons	Tons	AUM	Bu
AnC2:						
Apison	3e	80	17	3.7	6.5	48
ApC2:						
Apison	3e	80	17	3.7	6.5	48
Armuchee	4e	---	---	---	5.0	---
ApD2:						
Apison	4e	75	15	3.1	6.0	35
Armuchee	6e	---	---	---	4.5	---
Ar:						
Arkaqua	4w	115	20	4.0	7.5	35
Suches	2w	115	22	5.0	8.0	60
AuC2:						
Armuchee	4e	---	---	---	5.0	---
AuD2:						
Armuchee	6e	---	---	---	4.5	---
AuE:						
Armuchee	7e	---	---	---	---	---
BrC:						
Brevard	3e	80	17	3.2	5.5	40
BrD:						
Brevard	4e	75	15	3.0	5.5	40
BrE:						
Brevard	7e	---	---	---	---	---
CaF:						
Cataska	7s	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---
CaG:						
Cataska	7s	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---
CcD:						
Citico	6e	---	---	---	4.5	---
CcF:						
Citico	7e	---	---	---	---	---
CoC2:						
Collegedale	4e	75	17	3.6	5.5	40
CoD2:						
Collegedale	6e	---	---	---	4.5	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Pasture	Wheat
		Bu	Tons	Tons	AUM	Bu
DeB2:						
Decatur	2e	115	24	5.5	8.5	55
DeC2:						
Decatur	3e	90	20	4.5	8.0	40
DeD2:						
Decatur	4e	80	15	3.6	7.5	35
DtD:						
Ditney	6e	---	---	---	---	---
DtF:						
Ditney	7e	---	---	---	---	---
Ea:						
Emory	2w	110	25	5.5	8.0	60
EdC:						
Evard	3e	75	15	3.4	5.5	35
EdD:						
Evard	6e	---	---	---	---	---
ErC:						
Evard	3e	75	15	3.4	5.5	35
Hayesville	3e	75	15	3.4	5.5	35
ErD:						
Evard	6e	---	---	---	---	---
Hayesville	6e	---	---	---	---	---
EvC:						
Evard	4e	75	15	3.4	5.5	35
Hayesville	4e	75	15	3.4	5.5	35
EvD:						
Evard	6e	---	---	---	---	---
Hayesville	6e	---	---	---	---	---
GeC:						
Gullied land	8e	---	---	---	---	---
Evard	4e	---	---	---	---	---
GeD:						
Gullied land	8e	---	---	---	---	---
Evard	6e	---	---	---	---	---
GuE:						
Gullied land	8e	---	---	---	---	---
Ha:						
Hamblen	2w	100	25	5.5	7.5	60
JeD:						
Jeffrey	6e	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Pasture	Wheat
		Bu	Tons	Tons	AUM	Bu
JeF:						
Jeffrey	7e	---	---	---	---	---
JkD:						
Junaluska	6e	---	---	---	5.0	---
JkF:						
Junaluska	7e	---	---	---	---	---
JnC:						
Junaluska	4e	70	14	3.0	6.0	30
Brasstown	4e	70	14	3.0	7.5	30
JnD:						
Junaluska	6e	---	---	---	5.0	---
Brasstown	6e	---	---	---	5.0	---
JtF:						
Junaluska	7e	---	---	---	---	---
Citico	7e	---	---	---	---	---
JuF:						
Junaluska	7e	---	---	---	---	---
Tsali	7e	---	---	---	---	---
KeC:						
Keener	3e	90	18	3.4	7.5	40
KeD:						
Keener	4e	75	15	3.3	6.0	35
LeB:						
Leadvale	2e	75	17	3.6	6.0	50
LkC:						
Lostcove	7s	---	---	---	6.0	---
Keener	3s	---	---	---	6.0	---
LkD:						
Lostcove	7s	---	---	---	---	---
Keener	4s	---	---	---	---	---
LkF:						
Lostcove	7s	---	---	---	---	---
Keener	7s	---	---	---	---	---
McC:						
McCamy	3e	80	17	3.0	6.0	35
McD:						
McCamy	6e	---	---	---	4.5	---
MnC:						
Minvale	3e	80	18	4.0	7.0	40

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Pasture	Wheat
		Bu	Tons	Tons	AUM	Bu
MnD:						
Minvale	4e	60	14	3.1	5.0	35
NeC:						
Needmore	4e	60	14	3.2	5.0	35
NeD:						
Needmore	6e	---	---	---	5.0	---
SeB:						
Sequatchie	2e	110	22	4.0	7.5	55
Sm:						
Slickens	8e	---	---	---	---	---
Su:						
Suches	2w	115	22	5.0	8.0	60
TaE:						
Talbott	7e	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---
TeB:						
Tate	2e	105	19	4.0	7.0	55
To:						
Toccoa	2w	90	21	4.0	7.0	55
TuF:						
Tusquitee	7e	---	---	---	---	---
Ud:						
Udifluvents	3w	---	---	---	---	---
UnD:						
Unicoi	7s	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---
UnF:						
Unicoi	7s	---	---	---	---	---
Rock outcrop	8s	---	---	---	---	---
W:						
Water.						
WaF:						
Wallen	7s	---	---	---	---	---
WbB2:						
Waynesboro	2e	115	23	5.5	7.5	55
WbC2:						
Waynesboro	3e	90	19	4.5	7.5	50
WbD2:						
Waynesboro	4e	80	15	3.6	6.5	45

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Pasture	Wheat
		Bu	Tons	Tons	AUM	Bu
WbD3:						
Waynesboro	6e	---	---	---	6.0	---
Wt:						
Whitwell	2w	85	25	5.5	7.0	55

Table 6.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
Ar	Arkaqua-Suches complex, occasionally flooded (where drained)
DeB2	Decatur silt loam, 2 to 5 percent slopes, eroded
Ea	Emory silt loam, 0 to 4 percent slopes, occasionally flooded
Ha	Hamblen silt loam, occasionally flooded
LeB	Leadvale silt loam, 2 to 5 percent slopes, rarely flooded
SeB	Sequatchie silt loam, 2 to 5 percent slopes, rarely flooded
Su	Suches loam, occasionally flooded
TeB	Tate loam, 2 to 8 percent slopes
To	Toccoa loam, 0 to 4 percent slopes, rarely flooded
WbB2	Waynesboro loam, 2 to 5 percent slopes, eroded
Wt	Whitwell loam, 0 to 3 percent slopes, occasionally flooded

Table 7.--Woodland Management and Productivity

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
AnC2:									
Apison	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114	loblolly pine, shortleaf pine
						loblolly pine	80	114	
						northern red oak	70	57	
						shortleaf pine	70	114	
						yellow poplar	90	86	
ApC2:									
Apison	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114	loblolly pine, shortleaf pine
						loblolly pine	80	114	
						northern red oak	70	57	
						shortleaf pine	70	114	
						yellow poplar	90	86	
Armuchee	Slight	Slight	Slight	Slight	Moderate	Virginia pine	60	86	loblolly pine, shortleaf pine
						shortleaf pine	60	86	
						white oak	60	43	
ApD2:									
Apison	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114	loblolly pine, shortleaf pine
						loblolly pine	80	114	
						northern red oak	70	57	
						shortleaf pine	70	114	
						yellow poplar	90	86	
Armuchee	Moderate	Moderate	Moderate	Slight	Moderate	Virginia pine	50	72	loblolly pine, shortleaf pine
						shortleaf pine	50	72	
Ar:									
Arkaqua	Slight	Moderate	Moderate	Slight	Severe	Virginia pine	80	114	black walnut, eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						black walnut	100	---	
						eastern white pine	90	172	
						shortleaf pine	75	114	
						yellow poplar	100	114	
Suches	Slight	Slight	Slight	Slight	Moderate	black walnut	100	---	black walnut, eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						eastern white pine	100	186	
						loblolly pine	90	129	
						northern red oak	90	57	
						shortleaf pine	80	129	
						yellow poplar	105	114	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
AuC2:									
Armuchee	Slight	Slight	Slight	Slight	Moderate	Virginia pine	60	86	loblolly pine, shortleaf pine
						shortleaf pine	60	86	
						white oak	60	43	
AuD2:									
Armuchee	Moderate	Moderate	Moderate	Slight	Moderate	Virginia pine	50	72	loblolly pine, shortleaf pine
						shortleaf pine	50	72	
AuE:									
Armuchee	Severe	Severe	Severe	Slight	Moderate	Virginia pine	50	72	loblolly pine
						shortleaf pine	50	72	
BrC:									
Brevard	Slight	Slight	Slight	Slight	Moderate	Virginia pine	80	114	black walnut, eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						eastern white pine	90	172	
						hemlock	---	---	
						northern red oak	75	57	
						red maple	---	---	
						shortleaf pine	70	114	
						white oak	---	---	
						yellow poplar	95	100	
BrD:									
Brevard	Moderate	Moderate	Moderate	Slight	Moderate	Virginia pine	80	114	black walnut, eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						eastern white pine	90	172	
						hemlock	---	---	
						northern red oak	75	57	
						red maple	---	---	
						shortleaf pine	70	114	
						white oak	---	---	
						yellow poplar	95	100	
BrE:									
Brevard	Severe	Severe	Moderate	Slight	Moderate	Virginia pine	80	114	black walnut, eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						eastern white pine	90	172	
						hemlock	---	---	
						northern red oak	75	57	
						red maple	---	---	
						shortleaf pine	70	114	
						white oak	---	---	
						yellow poplar	95	100	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
CaF:									
Cataska	Moderate	Severe	Severe	Severe	Moderate	chestnut oak	40	29	Virginia pine, loblolly pine
						pitch pine	40	---	
						scarlet oak	40	29	
Rock outcrop.									
CaG:									
Cataska	Moderate	Severe	Severe	Severe	Moderate	chestnut oak	40	29	Virginia pine, loblolly pine
						pitch pine	40	---	
						scarlet oak	40	29	
Rock outcrop.									
CcD:									
Citico	Moderate	Moderate	Slight	Slight	Moderate	eastern white pine	90	172	eastern white pine, loblolly pine, shortleaf pine
						northern red oak	80	57	
						yellow poplar	100	114	
CcF:									
Citico	Severe	Severe	Slight	Slight	Moderate	eastern white pine	90	172	eastern white pine, loblolly pine, shortleaf pine
						northern red oak	80	57	
						yellow poplar	100	114	
CoC2:									
Collegedale	Slight	Moderate	Slight	Slight	Moderate	Virginia pine	70	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						loblolly pine	80	114	
						shortleaf pine	70	114	
						southern red oak	70	57	
						white oak	70	57	
						yellow poplar	90	86	
CoD2:									
Collegedale	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						loblolly pine	80	114	
						shortleaf pine	70	114	
						southern red oak	70	57	
						white oak	70	57	
						yellow poplar	90	86	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
DeB2:									
Decatur	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	80	143	
						loblolly pine	80	114	
						shortleaf pine	66	100	
						yellow poplar	90	86	
DeC2:									
Decatur	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	80	143	
						loblolly pine	80	114	
						shortleaf pine	66	100	
						yellow poplar	90	86	
DeD2:									
Decatur	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	114	yellow poplar, shortleaf pine, eastern white pine, loblolly pine
						eastern white pine	80	143	
						loblolly pine	80	114	
						shortleaf pine	66	100	
						yellow poplar	90	86	
DtD:									
Ditney	Slight	Moderate	Moderate	Slight	Moderate	Virginia pine	50	72	Virginia pine, loblolly pine, shortleaf pine
						northern red oak	50	29	
						shortleaf pine	50	72	
DtF:									
Ditney	Moderate	Severe	Severe	Slight	Moderate	Virginia pine	50	72	Virginia pine, loblolly pine, shortleaf pine
						northern red oak	50	29	
						shortleaf pine	50	72	
Ea:									
Emory	Slight	Slight	Slight	Slight	Severe	black cherry	---	---	black walnut, loblolly pine, yellow poplar
						black walnut	---	---	
						loblolly pine	90	129	
						northern red oak	80	57	
						white ash	---	---	
						yellow poplar	104	114	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
EdC:									
Evard	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	80	143	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	70	---	
						shortleaf pine	70	114	
						southern red oak	75	57	
						white oak	75	57	
						yellow poplar	90	86	
EdD:									
Evard	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	80	143	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	70	---	
						shortleaf pine	70	114	
						southern red oak	75	57	
						white oak	75	57	
						yellow poplar	90	86	
ErC:									
Evard	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	80	143	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	70	---	
						shortleaf pine	70	114	
						southern red oak	75	57	
						white oak	75	57	
						yellow poplar	90	86	
Hayesville	Slight	Slight	Slight	Slight	Moderate	Virginia pine	74	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	84	157	
						northern red oak	---	---	
						pitch pine	82	114	
						shortleaf pine	70	114	
						yellow poplar	93	100	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
ErD:									
Evard	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	80	143	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	70	---	
						shortleaf pine	70	114	
						southern red oak	75	57	
						white oak	75	57	
						yellow poplar	90	86	
Hayesville	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	74	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	84	157	
						northern red oak	---	---	
						pitch pine	82	114	
						shortleaf pine	70	114	
						yellow poplar	93	100	
EvC:									
Evard	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	80	143	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	70	---	
						shortleaf pine	70	114	
						southern red oak	75	57	
						white oak	75	57	
						yellow poplar	90	86	
Hayesville	Slight	Slight	Slight	Slight	Moderate	Virginia pine	74	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	84	157	
						northern red oak	---	---	
						pitch pine	82	114	
						shortleaf pine	70	114	
						yellow poplar	93	100	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
EvD:									
Evard	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	80	143	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	70	---	
						shortleaf pine	70	114	
						southern red oak	75	57	
						white oak	75	57	
						yellow poplar	90	86	
Hayesville	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	74	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	84	157	
						northern red oak	---	---	
						pitch pine	82	114	
						shortleaf pine	70	114	
						yellow poplar	93	100	
GeC:									
Gullied land.									
Evard	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114	Virginia pine, black locust, loblolly pine, shortleaf pine
						eastern white pine	80	143	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	70	---	
						shortleaf pine	70	114	
						southern red oak	75	57	
						white oak	75	57	
						yellow poplar	90	86	
GeD:									
Gullied land.									
Evard	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	114	Virginia pine, black locust, loblolly pine, shortleaf pine
						eastern white pine	80	143	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	70	---	
						shortleaf pine	70	114	
						southern red oak	75	57	
						white oak	75	57	
						yellow poplar	90	86	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
GuE:									
Gullied land.									
Ha:									
Hamblen	Slight	Slight	Moderate	Slight	Severe	loblolly pine	90	129	loblolly pine, yellow poplar
						northern red oak	80	57	
						yellow poplar	100	114	
JeD:									
Jeffrey	Slight	Moderate	Slight	Slight	Moderate	eastern white pine	70	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						northern red oak	60	43	
						yellow poplar	80	72	
JeF:									
Jeffrey	Moderate	Severe	Slight	Slight	Moderate	eastern white pine	70	114	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						northern red oak	60	43	
						yellow poplar	80	72	
JkD:									
Junaluska	Moderate	Moderate	Moderate	Moderate	Moderate	Virginia pine	74	114	eastern white pine, loblolly pine, shortleaf pine
						black oak	---	---	
						chestnut oak	65	43	
						eastern white pine	86	157	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	69	43	
						shortleaf pine	69	114	
						white oak	61	43	
JkF:									
Junaluska	Severe	Severe	Moderate	Moderate	Moderate	Virginia pine	74	114	eastern white pine, loblolly pine, shortleaf pine
						black oak	---	---	
						chestnut oak	65	43	
						eastern white pine	86	157	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	69	43	
						shortleaf pine	69	114	
						white oak	61	43	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
JnC:									
Junaluska	Slight	Slight	Slight	Moderate	Moderate	Virginia pine	74	114	eastern white pine, loblolly pine, shortleaf pine
						black oak	---	---	
						chestnut oak	65	43	
						eastern white pine	86	157	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	69	43	
						shortleaf pine	69	114	
						white oak	61	43	
Brasstown	Slight	Slight	Slight	Slight	Moderate	Virginia pine	74	114	eastern white pine, loblolly pine, shortleaf pine
						black oak	---	---	
						chestnut oak	---	---	
						eastern white pine	96	172	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	80	57	
						shortleaf pine	71	114	
						white oak	80	57	
JnD:									
Junaluska	Moderate	Moderate	Moderate	Moderate	Moderate	Virginia pine	74	114	eastern white pine, loblolly pine, shortleaf pine
						black oak	---	---	
						chestnut oak	65	43	
						eastern white pine	86	157	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	69	43	
						shortleaf pine	69	114	
						white oak	61	43	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
JnD:									
Brasstown	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	74	114	eastern white pine, loblolly pine, shortleaf pine
						black oak	---	---	
						chestnut oak	---	---	
						eastern white pine	96	172	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	80	57	
						shortleaf pine	71	114	
						white oak	80	57	
JtF:									
Junaluska	Severe	Severe	Moderate	Moderate	Moderate	Virginia pine	74	114	eastern white pine, loblolly pine, shortleaf pine
						black oak	---	---	
						chestnut oak	65	43	
						eastern white pine	86	157	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	69	43	
						shortleaf pine	69	114	
						white oak	61	43	
Citico	Severe	Severe	Slight	Slight	Moderate	eastern white pine	90	172	eastern white pine, loblolly pine, shortleaf pine
						northern red oak	80	57	
						yellow poplar	100	114	
JuF:									
Junaluska	Severe	Severe	Moderate	Moderate	Moderate	Virginia pine	74	114	eastern white pine, loblolly pine, shortleaf pine
						black oak	---	---	
						chestnut oak	65	43	
						eastern white pine	86	157	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	69	43	
						shortleaf pine	69	114	
						white oak	61	43	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
JuF:									
Tsali	Severe	Severe	Moderate	Severe	Slight	Virginia pine	66	100	Virginia pine, loblolly pine, shortleaf pine
						black oak	---	---	
						chestnut oak	---	---	
						hickory	---	---	
						pitch pine	69	---	
						scarlet oak	64	43	
						shortleaf pine	60	86	
						southern red oak	---	---	
						white oak	57	43	
KeC:									
Keener	Slight	Slight	Slight	Slight	Moderate	Virginia pine	80	114	eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						northern red oak	80	57	
						yellow poplar	115	129	
KeD:									
Keener	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	80	114	eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						northern red oak	80	57	
						yellow poplar	115	129	
LeB:									
Leadvale	Slight	Slight	Slight	Moderate	Moderate	Virginia pine	70	114	Virginia pine, loblolly pine, shortleaf pine
						loblolly pine	80	114	
						shortleaf pine	70	114	
						white oak	70	57	
						yellow poplar	90	86	
LkC:									
Lostcove	Slight	Slight	Slight	Slight	Moderate	eastern hemlock	---	---	eastern white pine, loblolly pine, northern red oak, shortleaf pine, white oak, yellow poplar
						eastern white pine	90	172	
						northern red oak	79	57	
						red maple	---	---	
						sugar maple	64	43	
						white oak	---	---	
						yellow poplar	88	86	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
LkC:									
Keener	Slight	Slight	Slight	Slight	Moderate	Virginia pine	80	114	eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						northern red oak	80	57	
						yellow poplar	115	129	
LkD:									
Lostcove	Moderate	Moderate	Slight	Slight	Moderate	eastern hemlock	---	---	eastern white pine, loblolly pine, northern red oak, shortleaf pine, white oak, yellow poplar
						eastern white pine	90	172	
						northern red oak	79	57	
						red maple	---	---	
						sugar maple	64	43	
						white oak	---	---	
						yellow poplar	88	86	
Keener	Moderate	Moderate	Moderate	Slight	Moderate	Virginia pine	80	114	eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						northern red oak	80	57	
						yellow poplar	115	129	
LkF:									
Lostcove	Severe	Severe	Slight	Slight	Moderate	eastern hemlock	---	---	eastern white pine, loblolly pine, northern red oak, shortleaf pine, white oak, yellow poplar
						eastern white pine	90	172	
						northern red oak	79	57	
						red maple	---	---	
						sugar maple	64	43	
						white oak	---	---	
						yellow poplar	88	86	
Keener	Severe	Moderate	Severe	Slight	Moderate	Virginia pine	80	114	eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						northern red oak	80	57	
						yellow poplar	115	129	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
McC:									
McCamy	Slight	Moderate	Slight	Slight	Moderate	Virginia pine	80	114	eastern white pine, loblolly pine, northern red oak, shortleaf pine
						black oak	78	---	
						chestnut oak	73	---	
						northern red oak	78	---	
						scarlet oak	77	43	
						shortleaf pine	63	100	
						white oak	73	57	
						yellow poplar	95	---	
McD:									
McCamy	Moderate	Moderate	Moderate	Slight	Moderate	Virginia pine	71	---	eastern white pine, loblolly pine, northern red oak, shortleaf pine
						scarlet oak	66	---	
						shortleaf pine	57	---	
						white oak	67	---	
						yellow poplar	88	86	
MnC:									
Minvale	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114	black walnut, loblolly pine, shortleaf pine, yellow poplar
						loblolly pine	80	114	
						shortleaf pine	70	114	
						white oak	70	57	
						yellow poplar	90	86	
MnD:									
Minvale	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	114	black walnut, loblolly pine, shortleaf pine, yellow poplar
						loblolly pine	80	114	
						shortleaf pine	70	114	
						white oak	70	57	
						yellow poplar	90	86	
NeC:									
Needmore	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114	Virginia pine, loblolly pine, shortleaf pine
						eastern redcedar	50	57	
						northern red oak	70	57	
						shortleaf pine	70	114	
NeD:									
Needmore	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114	Virginia pine, loblolly pine, shortleaf pine
						eastern redcedar	50	57	
						northern red oak	70	57	
						shortleaf pine	70	114	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
SeB:									
Sequatchie	Slight	Slight	Slight	Slight	Moderate	loblolly pine	90	129	black walnut, loblolly pine, shortleaf pine, yellow poplar
						white oak	80	57	
						yellow poplar	100	114	
Sm:									
Slickens.									
Su:									
Suches	Slight	Slight	Slight	Slight	Moderate	black walnut	100	---	black walnut, eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						eastern white pine	100	186	
						loblolly pine	90	129	
						northern red oak	90	57	
						shortleaf pine	80	129	
						yellow poplar	105	114	
TaE:									
Talbott	Moderate	Moderate	Moderate	Slight	Moderate	eastern redcedar	40	43	Virginia pine, loblolly pine, shortleaf pine
						loblolly pine	70	86	
						northern red oak	60	43	
						shortleaf pine	60	86	
Rock outcrop.									
TeB:									
Tate	Slight	Slight	Slight	Slight	Moderate	Virginia pine	---	---	eastern white pine, loblolly pine, shortleaf pine, yellow poplar
						eastern white pine	89	157	
						northern red oak	---	---	
						shortleaf pine	---	---	
						yellow poplar	92	86	
To:									
Toccoa	Slight	Slight	Slight	Slight	Moderate	loblolly pine	90	129	American sycamore, loblolly pine, shortleaf pine, yellow poplar
						southern red oak	---	---	
						sweetgum	100	143	
						yellow poplar	107	114	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
TuF:									
Tusquitee	Severe	Severe	Slight	Slight	Severe	black cherry	---	---	black walnut, eastern white pine, loblolly pine, northern red oak, shortleaf pine, yellow poplar
						black locust	---	---	
						black walnut	---	---	
						eastern hemlock	---	---	
						eastern white pine	100	186	
						hickory	---	---	
						northern red oak	---	---	
						white oak	---	---	
						yellow birch	---	---	
						yellow poplar	103	114	
Ud:									
Udifluvents.									
UnD:									
Unicoi	Slight	Moderate	Moderate	Severe	Slight	Virginia pine	40	43	Virginia pine, loblolly pine, shortleaf pine
						pitch pine	40	29	
Rock outcrop.									
UnF:									
Unicoi	Moderate	Severe	Severe	Severe	Slight	Virginia pine	40	43	Virginia pine, loblolly pine, shortleaf pine
						pitch pine	40	29	
Rock outcrop.									
W:									
Water.									
WaF:									
Wallen	Moderate	Severe	Moderate	Moderate	Slight	Virginia pine	65	100	Virginia pine, loblolly pine, shortleaf pine
						northern red oak	60	43	
						shortleaf pine	60	86	
WbB2:									
Waynesboro	Slight	Slight	Slight	Slight	Moderate	loblolly pine	80	114	black walnut, loblolly pine, shortleaf pine, yellow poplar
						southern red oak	70	57	
						white oak	70	57	
						yellow poplar	90	86	

Table 7.--Woodland Management and Productivity--Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
WbC2:									
Waynesboro	Slight	Slight	Slight	Slight	Moderate	loblolly pine	80	114	black walnut,
						southern red oak	70	57	loblolly pine,
						white oak	70	57	shortleaf pine,
						yellow poplar	90	86	yellow poplar
WbD2:									
Waynesboro	Moderate	Moderate	Moderate	Slight	Moderate	loblolly pine	70	86	eastern white pine,
						shortleaf pine	60	86	loblolly pine,
						southern red oak	60	43	shortleaf pine
WbD3:									
Waynesboro	Moderate	Moderate	Moderate	Slight	Moderate	loblolly pine	70	86	loblolly pine,
						shortleaf pine	60	86	shortleaf pine,
						southern red oak	60	43	shortleaf pine
Wt:									
Whitwell	Slight	Slight	Moderate	Slight	Slight	eastern white pine	90	172	eastern white pine,
						loblolly pine	90	129	loblolly pine,
						northern red oak	75	57	shortleaf pine
						sweetgum	90	100	
						yellow poplar	95	100	

Table 8.--Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AnC2:					
Apison	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope depth to rock
ApC2:					
Apison	Moderate: slope	Moderate: slope	Severe: slope	Severe: erodes easily	Moderate: slope depth to rock
Armuchee	Moderate: slope small stones	Moderate: slope small stones	Severe: slope small stones	Slight	Moderate: slope small stones
ApD2:					
Apison	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
Armuchee	Severe: slope	Severe: slope	Severe: slope small stones	Moderate: slope	Severe: slope
Ar:					
Arkaqua	Severe: flooding	Moderate: wetness	Moderate: flooding wetness	Moderate: wetness	Moderate: flooding wetness
Suches	Severe: flooding	Slight	Moderate: flooding	Slight	Moderate: flooding
AuC2:					
Armuchee	Moderate: slope small stones	Moderate: slope small stones	Severe: slope small stones	Slight	Moderate: slope small stones
AuD2:					
Armuchee	Severe: slope	Severe: slope	Severe: slope small stones	Moderate: slope	Severe: slope
AuE:					
Armuchee	Severe: slope	Severe: slope	Severe: slope small stones	Severe: slope	Severe: slope
BrC:					
Brevard	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: large stones slope
BrD:					
Brevard	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
BrE:					
Brevard	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
CaF:					
Cataska	Severe: percs slowly, slope	Severe: percs slowly, slope	Severe: slope, small stones	Severe: slope	Severe: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock
CaG:					
Cataska	Severe: percs slowly, slope	Severe: percs slowly, slope	Severe: slope, small stones	Severe: slope	Severe: slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock
CcD:					
Citico	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
CcF:					
Citico	Severe: slope	Severe: slope	Severe: slope, small stones	Severe: slope	Severe: slope
CoC2:					
Collegedale	Moderate: percs slowly, slope	Moderate: percs slowly, slope	Severe: slope	Severe: erodes easily	Moderate: slope
CoD2:					
Collegedale	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
DeB2:					
Decatur	Slight	Slight	Moderate: slope	Slight	Slight
DeC2:					
Decatur	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
DeD2:					
Decatur	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
DtD:					
Ditney	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
DtF:					
Ditney	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Ea:					
Emory	Severe: flooding	Slight	Moderate: flooding, slope	Slight	Moderate: flooding

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
EdC:					
Evard	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
EdD:					
Evard	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
ErC:					
Evard	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
Hayesville	Severe: too acid	Severe: too acid	Severe: slope, too acid	Slight	Severe: too acid
ErD:					
Evard	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Hayesville	Severe: slope, too acid	Severe: slope, too acid	Severe: slope, too acid	Moderate: slope	Severe: slope, too acid
EvC:					
Evard	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
Hayesville	Severe: too acid	Severe: too acid	Severe: slope, too acid	Slight	Severe: too acid
EvD:					
Evard	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Hayesville	Severe: slope, too acid	Severe: slope, too acid	Severe: slope, too acid	Moderate: slope	Severe: slope, too acid
GeC:					
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Evard	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
GeD:					
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Evard	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
GuE:					
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ha:					
Hamblen	Severe: flooding	Moderate: wetness	Moderate: flooding, wetness	Slight	Moderate: flooding

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
JeD:					
Jeffrey	Severe: slope	Severe: slope	Severe: slope; small stones	Moderate: slope	Severe: slope
JeF:					
Jeffrey	Severe: slope	Severe: slope	Severe: slope; small stones	Severe: slope	Severe: slope
JkD:					
Junaluska	Severe: slope; too acid	Severe: slope; too acid	Severe: slope; small stones; too acid	Severe: slope	Severe: slope
JkF:					
Junaluska	Severe: slope; too acid	Severe: slope; too acid	Severe: slope; small stones; too acid	Severe: slope	Severe: slope
JnC:					
Junaluska	Severe: too acid	Severe: too acid	Severe: slope; too acid	Slight	Moderate: slope; depth to rock
Brasstown	Severe: too acid	Severe: too acid	Severe: slope; too acid	Slight	Severe: too acid
JnD:					
Junaluska	Severe: slope; too acid	Severe: slope; too acid	Severe: slope; too acid	Severe: slope	Severe: slope
Brasstown	Severe: slope; too acid	Severe: slope; too acid	Severe: slope; too acid	Severe: slope	Severe: slope; too acid
JtF:					
Junaluska	Severe: slope; too acid	Severe: slope; too acid	Severe: slope; small stones; too acid	Severe: slope	Severe: slope
Citico	Severe: slope	Severe: slope	Severe: slope; small stones	Severe: slope	Severe: slope
JuF:					
Junaluska	Severe: slope; too acid	Severe: slope; too acid	Severe: slope; small stones; too acid	Severe: slope	Severe: slope
Tsali	Severe: slope; too acid; depth to rock	Severe: slope; too acid; depth to rock	Severe: slope; small stones; depth to rock	Severe: slope	Severe: slope; too acid; depth to rock
KeC:					
Keener	Slight	Slight	Severe: slope	Slight	Slight

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
KeD:					
Keener	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
LeB:					
Leadvale	Severe: flooding	Moderate: percs slowly wetness	Moderate: percs slowly slope wetness	Severe: erodes easily	Slight
LkC:					
Lostcove	Severe: too acid	Severe: too acid	Severe: large stones slope small stones	Moderate: large stones	Moderate: large stones small stones
Keener	Moderate: large stones	Moderate: large stones	Severe: large stones slope	Moderate: large stones	Severe: large stones
LkD:					
Lostcove	Severe: slope too acid	Severe: slope too acid	Severe: large stones slope small stones	Moderate: large stones slope	Severe: slope
Keener	Severe: slope	Severe: slope	Severe: large stones slope	Moderate: large stones slope	Severe: large stones slope
LkF:					
Lostcove	Severe: slope too acid	Severe: slope too acid	Severe: large stones slope small stones	Severe: slope	Severe: slope
Keener	Severe: slope	Severe: slope	Severe: large stones slope	Severe: slope	Severe: large stones slope
McC:					
McCamy	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope depth to rock
McD:					
McCamy	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
MnC:					
Minvale	Moderate: slope small stones	Moderate: slope small stones	Severe: slope small stones	Slight	Moderate: slope small stones
MnD:					
Minvale	Severe: slope	Severe: slope	Severe: slope small stones	Moderate: slope	Severe: slope
NeC:					
Needmore	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Slight	Moderate: slope depth to rock

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
NeD:					
Needmore	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Slight	Moderate: slope depth to rock
SeB:					
Sequatchie	Severe: flooding	Slight	Moderate: slope small stones	Slight	Moderate: large stones
Sm:					
Slickens.					
Su:					
Suches	Severe: flooding	Slight	Moderate: flooding	Slight	Moderate: flooding
TaE:					
Talbott	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
TeB:					
Tate	Slight	Slight	Moderate: slope small stones	Slight	Slight
To:					
Toccoa	Severe: flooding	Slight	Slight	Slight	Slight
TuF:					
Tusquitee	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Ud:					
Udifluvents.					
UnD:					
Unicoi	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones	Severe: slope	Severe: depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
UnF:					
Unicoi	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones	Severe: slope	Severe: depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
W:					
Water.					

Table 8.--Recreational Development--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
WaF:					
Wallen	Severe: slope, too acid	Severe: slope, too acid	Severe: slope, small stones, too acid	Severe: slope	Severe: slope, too acid
WbB2:					
Waynesboro	Slight	Slight	Moderate: slope, small stones	Slight	Slight
WbC2:					
Waynesboro	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
WbD2:					
Waynesboro	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
WbD3:					
Waynesboro	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Wt:					
Whitwell	Severe: flooding	Moderate: wetness	Moderate: small stones, wetness	Slight	Moderate: flooding

Table 9.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AnC2:										
Apison	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
ApC2:										
Apison	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Armuchee	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
ApD2:										
Apison	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Armuchee	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Ar:										
Arkaqua	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair
Suches	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
AuC2:										
Armuchee	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
AuD2:										
Armuchee	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
AuE:										
Armuchee	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
BrC:										
Brevard	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
BrD:										
Brevard	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
BrE:										
Brevard	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
CaF:										
Cataska	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
Rock outcrop	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
CaG:										
Cataska	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
Rock outcrop	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
CcD:										
Citico	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
CcF:										
Citico	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
CoC2:										
Collegedale	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CoD2:										
Collegedale	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DeB2:										
Decatur	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
DeC2:										
Decatur	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
DeD2:										
Decatur	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
DtD:										
Ditney	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DtF:										
Ditney	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Ea:										
Emory	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
EdC:										
Evard	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
EdD:										
Evard	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
ErC:										
Evard	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Hayesville	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
ErD:										
Evard	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Hayesville	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
EvC:										
Evard	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Hayesville	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
EvD:										
Evard	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
EvD:										
Hayesville	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
GeC:										
Gullied land	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Good	Very poor	Very poor	Fair
Evard	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
GeD:										
Gullied land	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Good	Very poor	Very poor	Fair
Evard	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
GuE:										
Gullied land	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Good	Very poor	Very poor	Fair
Ha:										
Hamblen	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
JeD:										
Jeffrey	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
JeF:										
Jeffrey	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
JkD:										
Junaluska	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
JkF:										
Junaluska	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
JnC:										
Junaluska	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
JnC:										
Brasstown	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
JnD:										
Junaluska	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Brasstown	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
JtF:										
Junaluska	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Citico	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
JuF:										
Junaluska	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Tsali	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Poor	Very poor
KeC:										
Keener	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
KeD:										
Keener	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
LeB:										
Leadvale	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
LkC:										
Lostcove	Poor	Fair	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Keener	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
LkD:										
Lostcove	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Keener	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
LkF:										
Lostcove	Poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Keener	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
McC:										
McCamy	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
McD:										
McCamy	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MnC:										
Minvale	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MnD:										
Minvale	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
NeC:										
Needmore	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
NeD:										
Needmore	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
SeB:										
Sequatchie	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Sm:										
Slickens										

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Su:										
Suches	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
TaE:										
Talbott	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Rock outcrop	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
TeB:										
Tate	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
To:										
Toccoa	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
TuF:										
Tusquitee	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Ud:										
Udifluvents										
UnD:										
Unicoi	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Rock outcrop	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
UnF:										
Unicoi	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Rock outcrop	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
W:										
Water										

Table 9.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
WaF:										
Wallen	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
WbB2:										
Waynesboro	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
WbC2:										
Waynesboro	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
WbD2:										
Waynesboro	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
WbD3:										
Waynesboro	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Wt:										
Whitwell	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor

Table 10.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AnC2:						
Apison	Moderate: slope, depth to rock	Moderate: slope	Moderate: slope, depth to rock	Severe: slope	Moderate: low strength, slope	Moderate: slope, depth to rock
ApC2:						
Apison	Moderate: slope, depth to rock	Moderate: slope	Moderate: slope, depth to rock	Severe: slope	Moderate: low strength, slope	Moderate: slope, depth to rock
Armuchee	Moderate: slope, too clayey, depth to rock	Moderate: shrink-swell, slope	Moderate: shrink-swell, slope, depth to rock	Severe: slope	Severe: low strength	Moderate: slope, small stones
ApD2:						
Apison	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Armuchee	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength, slope	Severe: slope
Ar:						
Arkaqua	Severe: wetness	Severe: flooding	Severe: flooding, wetness	Severe: flooding	Severe: flooding, low strength	Moderate: flooding, wetness
Suches	Moderate: flooding, wetness	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
AuC2:						
Armuchee	Moderate: slope, too clayey, depth to rock	Moderate: shrink-swell, slope	Moderate: shrink-swell, slope, depth to rock	Severe: slope	Severe: low strength	Moderate: slope, small stones
AuD2:						
Armuchee	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength, slope	Severe: slope

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AuE:						
Armuchee	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
BrC:						
Brevard	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action low strength slope	Moderate: large stones slope
BrD:						
Brevard	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
BrE:						
Brevard	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CaF:						
Cataska	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
CaG:						
Cataska	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
CcD:						
Citico	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CcF:						
Citico	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
CoC2:						
Collegedale	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Severe: low strength	Moderate: slope
CoD2:						
Collegedale	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: low strength slope	Severe: slope
DeB2:						
Decatur	Moderate: too clayey	Moderate: shrink-swell	Moderate: shrink-swell	Moderate: shrink-swell slope	Moderate: low strength	Slight
DeC2:						
Decatur	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Moderate: low strength slope	Moderate: slope
DeD2:						
Decatur	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
DtD:						
Ditney	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
DtF:						
Ditney	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
Ea:						
Emory	Moderate: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding low strength	Moderate: flooding
EdC:						
Evard	Severe: cutbanks cave	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Moderate: slope

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
EdD:						
Evard	Severe: slope cutbanks cave	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
ErC:						
Evard	Severe: cutbanks cave	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Moderate: slope
Hayesville	Moderate: slope too clayey	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action low strength slope	Severe: too acid
ErD:						
Evard	Severe: slope cutbanks cave	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Hayesville	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope too acid
EvC:						
Evard	Severe: cutbanks cave	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Moderate: slope
Hayesville	Moderate: slope too clayey	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action low strength slope	Severe: too acid
EvD:						
Evard	Severe: slope cutbanks cave	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Hayesville	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope too acid
GeC:						
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
GeC:						
Evard	Severe: cutbanks cave	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action slope	Moderate: slope
GeD:						
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Evard	Severe: slope cutbanks cave	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
GuE:						
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ha:						
Hamblen	Moderate: flooding wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Severe: flooding	Moderate: flooding
JeD:						
Jeffrey	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
JeF:						
Jeffrey	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
JkD:						
Junaluska	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
JkF:						
Junaluska	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
JnC:						
Junaluska	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: frost action low strength slope	Moderate: slope depth to rock

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
JnC:						
Brasstown	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: frost action low strength slope	Severe: too acid
JnD:						
Junaluska	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Brasstown	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope too acid
JtF:						
Junaluska	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Citico	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
JuF:						
Junaluska	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Tsali	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope too acid depth to rock
KeC:						
Keener	Moderate: large stones	Moderate: large stones	Moderate: large stones	Moderate: large stones slope	Moderate: large stones	Slight
KeD:						
Keener	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
LeB:						
Leadvale	Severe: wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Moderate: low strength wetness	Slight

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
LkC:						
Lostcove	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Severe: large stones	Moderate: large stones small stones
Keener	Moderate: large stones	Moderate: large stones	Moderate: large stones	Moderate: large stones slope	Moderate: large stones	Severe: large stones
LkD:						
Lostcove	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: slope
Keener	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: large stones slope
LkF:						
Lostcove	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: slope
Keener	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: large stones slope
McC:						
McCamy	Severe: depth to rock	Moderate: slope depth to rock	Severe: depth to rock	Severe: slope	Moderate: slope depth to rock	Moderate: slope depth to rock
McD:						
McCamy	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
MnC:						
Minvale	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: low strength slope	Moderate: slope small stones
MnD:						
Minvale	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
NeC:						
Needmore	Moderate: slope too clayey depth to rock	Moderate: shrink-swell slope	Moderate: shrink-swell slope depth to rock	Severe: slope	Severe: low strength	Moderate: slope depth to rock
NeD:						
Needmore	Moderate: slope too clayey depth to rock	Moderate: shrink-swell slope	Moderate: shrink-swell slope depth to rock	Severe: slope	Severe: low strength	Moderate: slope depth to rock
SeB:						
Sequatchie	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Moderate: large stones
Sm:						
Slickens.						
Su:						
Suches	Moderate: flooding wetness	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
TaE:						
Talbott	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: low strength slope	Severe: slope
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
TeB:						
Tate	Slight	Slight	Slight	Moderate: slope	Moderate: frost action	Slight
To:						
Toccoa	Moderate: wetness	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Slight
TuF:						
Tusquitee	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Ud:						
Udifluvents.						

Table 10.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
UnD:						
Unicoi	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
UnF:						
Unicoi	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock
W:						
Water.						
WaF:						
Wallen	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope too acid
WbB2:						
Waynesboro	Moderate: too clayey	Slight	Slight	Slight	Moderate: low strength	Slight
WbC2:						
Waynesboro	Moderate: slope too clayey	Moderate: slope	Moderate: slope	Severe: slope	Moderate: low strength slope	Moderate: slope
WbD2:						
Waynesboro	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
WbD3:						
Waynesboro	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Wt:						
Whitwell	Severe: wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Severe: flooding	Moderate: flooding

Table 11.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AnC2:					
Apison	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
ApC2:					
Apison	Severe: depth to rock	Severe: slope, depth to rock	Severe: depth to rock	Severe: depth to rock	Poor: depth to rock
Armuchee	Severe: depth to rock	Severe: slope, depth to rock	Severe: too clayey, depth to rock	Severe: depth to rock	Poor: hard to pack, too clayey, depth to rock
ApD2:					
Apison	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Poor: slope, depth to rock
Armuchee	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, too clayey, depth to rock	Severe: slope, depth to rock	Poor: hard to pack, too clayey, depth to rock
Ar:					
Arkaqua	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Fair: wetness
Suches	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Severe: flooding, wetness	Fair: thin layer, wetness
AuC2:					
Armuchee	Severe: depth to rock	Severe: slope, depth to rock	Severe: too clayey, depth to rock	Severe: depth to rock	Poor: hard to pack, too clayey, depth to rock
AuD2:					
Armuchee	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, too clayey, depth to rock	Severe: slope, depth to rock	Poor: hard to pack, too clayey, depth to rock
AuE:					
Armuchee	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, too clayey, depth to rock	Severe: slope, depth to rock	Poor: hard to pack, too clayey, depth to rock
BrC:					
Brevard	Moderate: percs slowly, slope	Severe: slope	Severe: seepage	Moderate: slope	Fair: slope, too clayey

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
BrD:					
Brevard	Severe: slope	Severe: slope	Severe: seepage slope	Severe: slope	Poor: slope
BrE:					
Brevard	Severe: slope	Severe: slope	Severe: seepage slope	Severe: slope	Poor: slope
CaF:					
Cataska	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: seepage small stones depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
CaG:					
Cataska	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: seepage small stones depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
CcD:					
Citico	Severe: slope	Severe: slope	Severe: slope depth to rock	Severe: slope	Poor: slope small stones
CcF:					
Citico	Severe: slope	Severe: slope	Severe: slope depth to rock	Severe: slope	Poor: slope small stones
CoC2:					
Collegedale	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: hard to pack too clayey
CoD2:					
Citico	Severe: percs slowly slope	Severe: slope	Severe: slope too clayey	Severe: slope	Poor: hard to pack slope too clayey
DeB2:					
Decatur	Slight	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: hard to pack too clayey
DeC2:					
Decatur	Moderate: slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: hard to pack slope too clayey

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
DeD2:					
Decatur	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
DtD:					
Ditney	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope depth to rock
DtF:					
Ditney	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope depth to rock
Ea:					
Emory	Severe: flooding	Severe: flooding	Severe: flooding wetness	Severe: flooding	Fair: too clayey
EdC:					
Evard	Moderate: slope	Severe: slope	Moderate: slope too sandy	Moderate: slope	Fair: slope small stones too sandy
EdD:					
Evard	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
ErC:					
Evard	Moderate: slope	Severe: slope	Moderate: slope too sandy	Moderate: slope	Fair: slope small stones too sandy
Hayesville	Moderate: percs slowly slope	Severe: seepage slope	Severe: seepage too acid	Moderate: slope	Poor: too acid
ErD:					
Evard	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Hayesville	Severe: slope	Severe: seepage slope	Severe: seepage slope too acid	Severe: slope	Poor: slope too acid
EvC:					
Evard	Moderate: slope	Severe: slope	Moderate: slope too sandy	Moderate: slope	Fair: slope small stones too sandy
Hayesville	Moderate: percs slowly slope	Severe: seepage slope	Severe: seepage too acid	Moderate: slope	Poor: too acid
EvD:					
Evard	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
EvD:					
Hayesville	Severe: slope	Severe: seepage slope	Severe: seepage slope too acid	Severe: slope	Poor: slope too acid
GeC:					
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Evard	Moderate: slope	Severe: slope	Moderate: slope too sandy	Moderate: slope	Fair: slope small stones too sandy
GeD:					
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Evard	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
GuE:					
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ha:					
Hamblen	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Fair: wetness
JeD:					
Jeffrey	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
JeF:					
Jeffrey	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
JkD:					
Junaluska	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
JkF:					
Junaluska	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
JnC:					
Junaluska	Severe: depth to rock	Severe: seepage slope depth to rock	Severe: seepage depth to rock	Severe: seepage depth to rock	Poor: small stones depth to rock

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
JnC:					
Brasstown	Moderate: percs slowly slope depth to rock	Severe: slope	Severe: too acid depth to rock	Moderate: slope depth to rock	Poor: too acid
JnD:					
Junaluska	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
Brasstown	Severe: slope	Severe: slope	Severe: slope too acid depth to rock	Severe: slope	Poor: slope too acid
JtF:					
Junaluska	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
Citico	Severe: slope	Severe: slope	Severe: slope depth to rock	Severe: slope	Poor: slope small stones
JuF:					
Junaluska	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
Tsali	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope too acid depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
KeC:					
Keener	Moderate: large stones percs slowly	Severe: seepage slope	Severe: seepage	Slight	Fair: large stones too clayey
KeD:					
Keener	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: slope	Poor: slope
LeB:					
Leadvale	Severe: percs slowly wetness	Severe: wetness	Severe: depth to rock	Moderate: flooding wetness depth to rock	Fair: too clayey depth to rock
LkC:					
Lostcove	Severe: large stones	Severe: large stones seepage slope	Severe: large stones too acid	Slight	Poor: large stones
Keener	Moderate: large stones percs slowly	Severe: seepage slope	Severe: large stones seepage	Slight	Fair: large stones too clayey

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
LkD:					
Lostcove	Severe: large stones slope	Severe: large stones seepage slope	Severe: large stones slope too acid	Severe: slope	Poor: large stones slope
Keener	Severe: slope	Severe: seepage slope	Severe: large stones seepage slope	Severe: slope	Poor: slope
LkF:					
Lostcove	Severe: large stones slope	Severe: large stones seepage slope	Severe: large stones slope too acid	Severe: slope	Poor: large stones slope
Keener	Severe: slope	Severe: seepage slope	Severe: large stones seepage slope	Severe: slope	Poor: slope
McC:					
McCamy	Severe: depth to rock	Severe: seepage slope depth to rock	Severe: seepage depth to rock	Severe: seepage depth to rock	Poor: depth to rock
McD:					
McCamy	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope depth to rock
MnC:					
Minvale	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: small stones too clayey
MnD:					
Minvale	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
NeC:					
Needmore	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
NeD:					
Needmore	Severe: percs slowly depth to rock	Severe: slope depth to rock	Severe: too clayey depth to rock	Severe: depth to rock	Poor: hard to pack too clayey depth to rock
SeB:					
Sequatchie	Moderate: flooding percs slowly	Severe: seepage	Severe: seepage	Moderate: flooding	Fair: small stones too clayey
Sm:					
Slickens.					

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Su:					
Suches	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Fair: thin layer wetness
TaE:					
Talbott	Severe: percs slowly slope depth to rock	Severe: slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
TeB:					
Tate	Moderate: percs slowly	Severe: seepage	Severe: seepage	Slight	Fair: large stones too clayey
To:					
Toccoa	Severe: wetness	Severe: seepage wetness	Severe: seepage wetness	Severe: seepage wetness	Good
TuF:					
Tusquitee	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: seepage slope	Poor: slope
Ud:					
Udifluvents.					
UnD:					
Unicoi	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
UnF:					
Unicoi	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Rock outcrop	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope depth to rock
W:					
Water.					
WaF:					
Wallen	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
WbB2:					
Waynesboro	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: hard to pack too clayey
WbC2:					
Waynesboro	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: hard to pack slope too clayey
WbD2:					
Waynesboro	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
WbD3:					
Waynesboro	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Wt:					
Whitwell	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Fair: too clayey wetness

Table 12.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
AnC2:				
Apison	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope, too clayey, depth to rock
ApC2:				
Apison	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: slope, too clayey, depth to rock
Armuchee	Poor: low strength, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, too clayey
ApD2:				
Apison	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope
Armuchee	Poor: low strength, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, too clayey
Ar:				
Arkaqua	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Good
Suches	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Good
AuC2:				
Armuchee	Poor: low strength, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, too clayey
AuD2:				
Armuchee	Poor: low strength, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, too clayey
AuE:				
Armuchee	Poor: low strength, slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, too clayey
BrC:				
Brevard	Good	Improbable: excess fines	Improbable: excess fines	Fair: large stones, slope, too clayey
BrD:				
Brevard	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
BrE:				
Brevard	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
CaF:				
Cataska	Poor: slope, depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope, small stones, depth to rock
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
CaG:				
Cataska	Poor: slope, depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope, small stones, depth to rock
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
CcD:				
Citico	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
CcF:				
Citico	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
CoC2:				
Collegedale	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
CoD2:				
Collegedale	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
DeB2:				
Decatur	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
DeC2:				
Decatur	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
DeD2:				
Decatur	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
DtD:				
Ditney	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
DtF:				
Ditney	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones
Ea:				
Emory	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: small stones
EdC:				
Evard	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope, small stones, too clayey
EdD:				
Evard	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
ErC:				
Evard	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope, small stones, too clayey
Hayesville	Good	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, too acid
ErD:				
Evard	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
Hayesville	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey, too acid
EvC:				
Evard	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope, small stones, too clayey
Hayesville	Good	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, too acid
EvD:				
Evard	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
Hayesville	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey, too acid
GeC:				
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
GeC:				
Evard	Good	Improbable: excess fines	Improbable: excess fines	Fair: slope small stones too clayey
GeD:				
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Evard	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope
GuE:				
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ha:				
Hamblen	Fair: low strength wetness	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim small stones
JeD:				
Jeffrey	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
JeF:				
Jeffrey	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
JkD:				
Junaluska	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too acid
JkF:				
Junaluska	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too acid
JnC:				
Junaluska	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too acid
Brasstown	Fair: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones too acid
JnD:				
Junaluska	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too acid
Brasstown	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones too acid

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
JtF:				
Junaluska	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, too acid
Citico	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
JuF:				
Junaluska	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, too acid
Tsali	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones, too acid, depth to rock
KeC:				
Keener	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, large stones
KeD:				
Keener	Fair: large stones, slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, large stones, slope
LeB:				
Leadvale	Fair: low strength, thin layer, depth to rock	Improbable: excess fines	Improbable: excess fines	Good
LkC:				
Lostcove	Poor: large stones	Improbable: large stones, excess fines	Improbable: large stones, excess fines	Poor: area reclaim, small stones, too acid
Keener	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, large stones
LkD:				
Lostcove	Poor: large stones	Improbable: large stones, excess fines	Improbable: large stones, excess fines	Poor: area reclaim, small stones, too acid
Keener	Fair: large stones, slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, large stones, slope

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
LkF:				
Lostcove	Poor: large stones, slope	Improbable: large stones, excess fines	Improbable: large stones, excess fines	Poor: area reclaim, small stones, too acid
Keener	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, large stones, slope
McC:				
McCamy	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Fair: area reclaim, small stones
McD:				
McCamy	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope
MnC:				
Minvale	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
MnD:				
Minvale	Fair: low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
NeC:				
Needmore	Poor: low strength, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
NeD:				
Needmore	Poor: low strength, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
SeB:				
Sequatchie	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Su:				
Suches	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Good
TaE:				
Talbott	Poor: low strength, slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
Rock outcrop	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, depth to rock
TeB:				
Tate	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, large stones

Table 12.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
To:				
Toccoa	Good	Improbable: excess fines	Improbable: excess fines	Good
TuF:				
Tusquitee	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
UnD:				
Unicoi	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
UnF:				
Unicoi	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Rock outcrop	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope depth to rock
WaF:				
Wallen	Poor: slope depth to rock	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: slope small stones too acid
WbB2:				
Waynesboro	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
WbC2:				
Waynesboro	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
WbD2:				
Waynesboro	Fair: low strength slope	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
WbD3:				
Waynesboro	Fair: low strength slope	Improbable: excess fines	Improbable: excess fines	Poor: slope too clayey
Wt:				
Whitwell	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey

Table 13.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
AnC2:							
Apison	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
ApC2:							
Apison	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
Armuchee	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope droughty
ApD2:							
Apison	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
Armuchee	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope droughty
Ar:							
Arkaqua	Moderate: seepage	Severe: wetness	Moderate: slow refill	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness	Favorable
Suches	Moderate: seepage	Moderate: piping	Moderate: slow refill deep to water	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness soil blowing	Favorable
AuC2:							
Armuchee	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
AuD2:							
Armuchee	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, droughty
AuE:							
Armuchee	Severe: slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock, droughty	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, droughty
BrC:							
Brevard	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
BrD:							
Brevard	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
BrE:							
Brevard	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
CaF:							
Cataska	Severe: slope, depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: percs slowly, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, droughty
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: slope, depth to rock	Limitation: slope, depth to rock
CaG:							
Cataska	Severe: slope, depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: percs slowly, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, droughty
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: slope, depth to rock	Limitation: slope, depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
CcD:							
Citico	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope droughty	Limitation: slope	Limitation: slope droughty
CcF:							
Citico	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope droughty	Limitation: slope	Limitation: slope droughty
CoC2:							
Collegedale	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
CoD2:							
Collegedale	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
DeB2:							
Decatur	Moderate: seepage	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
DeC2:							
Decatur	Moderate: seepage	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
DeD2:							
Decatur	Moderate: seepage	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
DtD:							
Ditney	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
DtF:							
Ditney	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Ea:							
Emory	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily flooding	Limitation: erodes easily	Limitation: erodes easily
EdC:							
Evard	Severe: slope	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope too sandy soil blowing	Limitation: slope
EdD:							
Evard	Severe: slope	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope too sandy soil blowing	Limitation: slope
ErC:							
Evard	Severe: slope	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope too sandy soil blowing	Limitation: slope
Hayesville	Severe: seepage slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope too acid	Limitation: slope	Limitation: slope
ErD:							
Evard	Severe: slope	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope too sandy soil blowing	Limitation: slope
Hayesville	Severe: seepage slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope too acid	Limitation: slope	Limitation: slope
EvC:							
Evard	Severe: slope	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope too sandy soil blowing	Limitation: slope
Hayesville	Severe: seepage slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope too acid	Limitation: slope	Limitation: slope

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
EvD:							
Evard	Severe: slope	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope too sandy soil blowing	Limitation: slope
Hayesville	Severe: seepage slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope too acid	Limitation: slope	Limitation: slope
GeC:							
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Evard	Severe: slope	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope too sandy soil blowing	Limitation: slope
GeD:							
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Evard	Severe: slope	Severe: seepage piping	Severe: no water	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope too sandy soil blowing	Limitation: slope
GuE:							
Gullied land	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable	Limitation: variable
Ha:							
Hamblen	Moderate: seepage	Severe: piping	Moderate: slow refill deep to water	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness	Favorable
JeD:							
Jeffrey	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
JeF:							
Jeffrey	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
JkD:							
Junaluska	Severe: seepage slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope too acid depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
JkF:							
Junaluska	Severe: seepage slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope too acid depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
JnC:							
Junaluska	Severe: seepage slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope too acid depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Brasstown	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope too acid	Limitation: slope	Limitation: slope
JnD:							
Junaluska	Severe: seepage slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope too acid depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Brasstown	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope too acid	Limitation: slope	Limitation: slope
JtF:							
Junaluska	Severe: seepage slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope too acid depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
JtF:							
Citico	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope droughty	Limitation: slope	Limitation: slope droughty
JuF:							
Junaluska	Severe: seepage slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope too acid depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Tsali	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope too acid depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
KeC:							
Keener	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope	Limitation: large stones	Limitation: large stones
KeD:							
Keener	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope	Limitation: large stones slope	Limitation: large stones slope
LeB:							
Leadvale	Moderate: seepage slope depth to rock	Severe: piping	Severe: no water	Limitation: percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily wetness	Limitation: erodes easily rooting depth
LkC:							
Lostcove	Moderate: seepage slope	Severe: large stones seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones	Limitation: large stones droughty
Keener	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope	Limitation: large stones	Limitation: large stones

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
LkD:							
Lostcove	Severe: slope	Severe: large stones seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
Keener	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope	Limitation: large stones slope	Limitation: large stones slope
LkF:							
Lostcove	Severe: slope	Severe: large stones seepage	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
Keener	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope	Limitation: large stones slope	Limitation: large stones slope
McC:							
McCamy	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
McD:							
McCamy	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
MnC:							
Minvale	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
MnD:							
Minvale	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
NeC:							
Needmore	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
NeD:							
Needmore	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, depth to rock
SeB:							
Sequatchie	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Sm:							
Slickens.							
Su:							
Suches	Moderate: seepage	Moderate: piping	Moderate: slow refill, deep to water	Limitation: flooding	Limitation: flooding, wetness	Limitation: wetness, soil blowing	Favorable
TaE:							
Talbott	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: erodes easily, slope, depth to rock	Limitation: erodes easily, slope, depth to rock
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: slope, depth to rock	Limitation: slope, depth to rock
TeB:							
Tate	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
To:							
Toccoa	Severe: seepage	Severe: piping	Moderate: deep to water	Limitation: deep to water	Favorable	Favorable	Favorable
TuF:							
Tusquitee	Severe: seepage, slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Ud:							
Udifluvents.							

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
UnD:							
Unicoi	Severe: slope, depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, droughty
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: slope, depth to rock	Limitation: slope, depth to rock
UnF:							
Unicoi	Severe: slope, depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, droughty
Rock outcrop	Severe: slope, depth to rock	Slight	Severe: no water	Limitation: deep to water	Limitation: slope, depth to rock	Limitation: slope, depth to rock	Limitation: slope, depth to rock
W:							
Water.							
WaF:							
Wallen	Severe: seepage, slope	Severe: large stones, seepage	Severe: no water	Limitation: deep to water	Limitation: large stones, slope, droughty	Limitation: large stones, slope, depth to rock	Limitation: large stones, slope, droughty
WbB2:							
Waynesboro	Moderate: seepage, slope	Severe: hard to pack, piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
WbC2:							
Waynesboro	Severe: slope	Severe: hard to pack, piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
WbD2:							
Waynesboro	Severe: slope	Severe: hard to pack, piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope

Table 13.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
WbD3:							
Waynesboro	Severe: slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Wt:							
Whitwell	Moderate: seepage	Severe: piping	Moderate: slow refill deep to water	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness	Favorable

Table 14.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
AnC2:												
Apison----------	0-6	Silt loam	CL, CL-ML, ML	A-4	0	0	85-100	75-100	65-90	55-85	18-30	3-10
	6-30	Clay loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	75-100	70-95	60-90	20-40	4-18
	30-61	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
ApC2:												
Apison----------	0-6	Silt loam	CL, CL-ML, ML	A-4	0	0	85-100	75-100	65-90	55-85	18-30	3-10
	6-30	Clay loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	75-100	70-95	60-90	20-40	4-18
	30-61	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Armuchee--------	0-4	Channery silt loam	CL, CL-ML, ML	A-4, A-6	0	0-2	70-80	65-75	60-70	50-65	25-39	5-15
	4-13	Channery silty clay, channery silty clay loam	CH, CL, ML	A-6, A-7	0	0-2	65-85	60-80	55-80	50-70	37-65	16-35
	13-21	Very channery silty clay, very channery silty clay loam	CH, CL, GC	A-6, A-2, A-7	0	0-5	35-75	25-70	20-65	15-55	35-60	13-30
	21-25	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
ApD2:												
Apison----------	0-6	Silt loam	CL, CL-ML, ML	A-4	0	0	85-100	75-100	65-90	55-85	18-30	3-10
	6-30	Clay loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	75-100	70-95	60-90	20-40	4-18
	30-61	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
ApD2:												
Armuchee--------	0-4	Channery silt loam	CL-ML, CL, ML	A-4, A-6	0	0-2	70-80	65-75	60-70	50-65	25-39	5-15
	4-13	Channery silty clay, channery silty clay loam	CH, CL, ML	A-6, A-7	0	0-2	65-85	60-80	55-80	50-70	37-65	16-35
	13-21	Very channery silty clay, very channery silty clay loam	CH, CL, GC	A-6, A-2, A-7	0	0-5	35-75	25-70	20-65	15-55	35-60	13-30
	21-25	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Ar:												
Arkaqua---------	0-6	Silt loam	SM	A-2, A-4	0	0	98-100	95-100	60-90	30-50	0-35	NP-7
	6-37	Clay loam, silt loam, fine sandy loam	MH, ML	A-4, A-5, A-7, A-6	0	0	96-100	95-100	80-100	51-90	35-55	4-20
	37-50	Silt loam, sandy clay loam, loam	CL-ML, ML, SM	A-4	0	0	96-100	95-100	60-100	36-70	0-35	NP-7
	50-61	Variable	---	---	---	---	---	---	---	---	---	---
Suches----------	0-10	Loam	CL-ML, SM	A-4	0	0	95-100	95-100	70-100	40-70	0-30	NP-7
	10-41	Loam, sandy clay loam, clay loam	CL, CL-ML	A-6, A-4, A-7	0	0	95-100	95-100	70-100	55-85	25-50	4-22
	41-60	Variable	---	---	---	---	---	---	---	---	---	---
AuC2:												
Armuchee--------	0-4	Channery silt loam	CL, CL-ML, ML	A-4, A-6	0	0-2	70-80	65-75	60-70	50-65	25-39	5-15
	4-13	Channery silty clay, channery silty clay loam	CH, CL, ML	A-6, A-7	0	0-2	65-85	60-80	55-80	50-70	37-65	16-35
	13-21	Very channery silty clay, very channery silty clay loam	CH, CL, GC	A-6, A-2, A-7	0	0-5	35-75	25-70	20-65	15-55	35-60	13-30
	21-25	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
AuD2:												
Armuchee	0-4	Channery silt loam	CL, ML, CL-ML	A-4, A-6	0	0-2	70-80	65-75	60-70	50-65	25-39	5-15
	4-13	Channery silty clay, channery silty clay loam	CH, CL, ML	A-6, A-7	0	0-2	65-85	60-80	55-80	50-70	37-65	16-35
	13-21	Very channery silty clay, very channery silty clay loam	CH, GC, CL	A-2, A-6, A-7	0	0-5	35-75	25-70	20-65	15-55	35-60	13-30
	21-25	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
AuE:												
Armuchee	0-8	Channery silt loam	CL, CL-ML, ML	A-4, A-6	0	0-2	70-80	65-75	60-70	50-65	25-39	5-15
	8-17	Channery silty clay, channery silty clay loam	CH, CL, ML	A-6, A-7	0	0-2	65-85	60-80	55-80	50-70	37-65	16-35
	17-24	Very channery silty clay, very channery silty clay loam	CH, CL, GC	A-2, A-7, A-6	0	0-5	35-75	25-70	20-65	15-55	35-60	13-30
	24-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
BrC:												
Brevard	0-7	Loam	CL, CL-ML, ML	A-4	0-5	5-15	98-100	95-100	85-95	60-80	25-35	NP-10
	7-70	Sandy clay loam, clay loam, silty clay loam	CL, ML, CL-ML	A-4, A-6, A-7	0-10	5-15	95-100	95-100	85-97	51-75	29-50	5-15
BrD:												
Brevard	0-7	Loam	CL, CL-ML, ML	A-4	0-5	5-15	98-100	95-100	85-95	60-80	25-35	NP-10
	7-70	Sandy clay loam, clay loam, silty clay loam	CL, ML, CL-ML	A-4, A-6, A-7	0-10	5-15	95-100	95-100	85-97	51-75	29-50	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
BrE:												
Brevard	0-7	Loam	CL, ML, CL-ML	A-4	0-5	5-15	98-100	95-100	85-95	60-80	25-35	NP-10
	7-70	Sandy clay loam, clay loam, silty clay loam	CL, CL-ML, ML	A-4, A-6, A-7	0-10	5-15	95-100	95-100	85-97	51-75	29-50	5-15
CaF:												
Cataska	0-5	Channery silt loam	CL-ML, ML, GC-GM, GM	A-4	0-2	3-15	55-80	50-75	45-70	40-60	0-30	NP-6
	5-15	Channery silt loam, very channery loam	GC-GM, GM, GP-GM	A-1, A-2	0-2	10-25	15-50	10-45	10-40	10-35	0-30	NP-7
	15-24	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	24-28	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
CaG:												
Cataska	0-5	Channery silt loam	GC-GM, GM, CL-ML, ML	A-4	0-2	3-15	55-80	50-75	45-70	40-60	0-30	NP-6
	5-15	Channery silt loam, very channery loam	GC-GM, GM, GP-GM	A-1, A-2	0-2	10-25	15-50	10-45	10-40	10-35	0-30	NP-7
	15-24	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	24-28	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
CcD:												
Citico	0-4	Channery silt loam	CL-ML, CL, GC, GC-GM	A-4	---	5-10	60-85	55-85	50-85	45-75	0-30	3-10
	4-12	Channery silt loam	CL-ML, GC, CL, GC-GM	A-4, A-6	---	5-10	60-85	55-85	50-85	49-80	25-35	7-14
	12-45	Channery silt loam	CL, GC, SC	A-4, A-6	---	5-15	50-80	45-80	40-80	36-75	25-35	7-14
	45-50	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
CcF:												
Citico	0-4	Channery silt loam	CL-ML, CL, GC, GC-GM	A-4	---	5-10	60-85	55-85	50-85	45-75	0-30	3-10
	4-12	Channery silt loam	CL-ML, GC, CL, GC-GM	A-4, A-6	---	5-10	60-85	55-85	50-85	49-80	25-35	7-14
	12-45	Channery silt loam	CL, GC, SC	A-4, A-6	---	5-15	50-80	45-80	40-80	36-75	25-35	7-14
	45-50	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
CoC2:												
Collegedale	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0-2	90-100	85-100	75-95	70-90	24-39	5-16
	6-65	Silty clay, clay	CH, CL	A-7	0	0-2	95-100	90-100	80-95	75-95	41-75	18-42
CoD2:												
Collegedale	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0-2	90-100	85-100	75-95	70-90	24-39	5-16
	6-65	Silty clay, clay	CH, CL	A-7	0	0-2	95-100	90-100	80-95	75-95	41-75	18-42
DeB2:												
Decatur	0-6	Silt loam	CL-ML, CL, ML	A-4, A-6	---	0-3	90-100	90-98	85-98	65-80	0-32	NP-12
	6-67	Clay	CL, MH, CH, ML	A-6, A-7	---	0-3	90-100	90-100	88-98	75-90	37-60	11-28
DeC2:												
Decatur	0-6	Silt loam	CL, CL-ML, ML	A-4, A-6	---	0-3	90-100	90-98	85-98	65-80	0-32	NP-12
	6-67	Clay	CL, MH, CH, ML	A-6, A-7	---	0-3	90-100	90-100	88-98	75-90	37-60	11-28
DeD2:												
Decatur	0-6	Silt loam	CL, CL-ML, ML	A-4, A-6	---	0-3	90-100	90-98	85-98	65-80	0-32	NP-12
	6-67	Clay	CH, ML, CL, MH	A-6, A-7	---	0-3	90-100	90-100	88-98	75-90	37-60	11-28
DtD:												
Ditney	0-7	Loam	ML, CL-ML, SC-SM, SM	A-2-4, A-4	0	0-6	90-100	80-95	65-80	30-60	0-30	NP-10
	7-15	Loam, sandy loam, fine sandy loam	ML, CL-ML, SC-SM, SM	A-2-4, A-4	0	0-5	90-100	80-95	65-80	30-60	0-30	NP-10
	15-35	Loam, sandy loam, cobbly loam	CL-ML, SM, ML, SC-SM	A-2-4, A-4	0	5-30	65-100	60-100	45-75	25-60	0-30	NP-10
	35-40	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
DtF:												
Ditney	0-7	Loam	CL-ML, ML, SM, SC-SM	A-2-4, A-4	0	0-6	90-100	80-95	65-80	30-60	0-30	NP-10
	7-15	Loam, sandy loam, fine sandy loam	ML, CL-ML, SC-SM, SM	A-2-4, A-4	0	0-5	90-100	80-95	65-80	30-60	0-30	NP-10
	15-35	Loam, sandy loam, cobbly loam	CL-ML, SM, ML, SC-SM	A-2-4, A-4	0	5-30	65-100	60-100	45-75	25-60	0-30	NP-10
	35-40	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Ea:												
Emory	0-8	Silt loam	CL-ML, CL, ML	A-4, A-6	---	0-2	95-100	90-100	85-100	80-95	25-40	4-15
	8-32	Silt loam, silty clay loam	CL-ML, CL, ML	A-4, A-6	---	0-2	95-100	90-100	85-100	80-95	25-40	4-15
	32-60	Silty clay loam, silt loam, silty clay	CL	A-4, A-6, A-7	---	0-2	90-100	75-100	70-100	65-95	25-45	9-20
EdC:												
Evard	0-5	Loam	ML	A-4	0	0-5	90-100	90-100	85-95	60-75	0-35	NP-9
	5-22	Sandy clay loam, clay loam	ML, CL, SC, SM	A-2, A-4, A-7-6, A-6	0	0-2	90-100	85-100	60-95	30-70	25-45	7-18
	22-32	Sandy loam, loam, sandy clay loam	CL, SM, ML, SC	A-2, A-4	0	0-5	80-100	75-100	60-95	20-55	0-25	NP-9
	32-60	Sandy loam, loam, loamy sand	SM	A-2, A-4	0	0-15	75-100	70-100	60-90	15-50	0-14	NP
EdD:												
Evard	0-5	Loam	ML	A-4	0	0-5	90-100	90-100	85-95	60-75	0-35	NP-9
	5-22	Sandy clay loam, clay loam	CL, ML, SM, SC	A-4, A-6, A-2, A-7-6	0	0-2	90-100	85-100	60-95	30-70	25-45	7-18
	22-32	Sandy loam, loam, sandy clay loam	ML, CL, SC, SM	A-2, A-4	0	0-5	80-100	75-100	60-95	20-55	0-25	NP-9
	32-60	Sandy loam, loam, loamy sand	SM	A-2, A-4	0	0-15	75-100	70-100	60-90	15-50	0-14	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
ErC:												
Evard	0-5	Loam	ML	A-4	0	0-5	90-100	90-100	85-95	60-75	0-35	NP-9
	5-22	Sandy clay loam, clay loam	CL, ML, SM, SC	A-2, A-7-6, A-4, A-6	0	0-2	90-100	85-100	60-95	30-70	25-45	7-18
	22-32	Sandy loam, loam, sandy clay loam	CL, SM, ML, SC	A-2, A-4	0	0-5	80-100	75-100	60-95	20-55	0-25	NP-9
	32-60	Sandy loam, loam, loamy sand	SM	A-2, A-4	0	0-15	75-100	70-100	60-90	15-50	0-14	NP
Hayesville	0-5	Loam	ML, SC, CL, SM	A-4	0	0-5	90-100	85-95	70-95	35-60	25-35	NP-10
	5-36	Clay loam, clay	CL, CH, MH, ML	A-6, A-7	0	0-5	90-100	85-100	70-100	55-80	36-66	11-35
	36-60	Fine sandy loam, loam, sandy clay loam	CL, SM, ML, SC	A-4, A-6	0	5-15	90-100	90-95	65-90	40-55	25-40	NP-12
ErD:												
Evard	0-5	Loam	ML	A-4	0	0-5	90-100	90-100	85-95	60-75	0-35	NP-9
	5-22	Sandy clay loam, clay loam	CL, ML, SM, SC	A-2, A-7-6, A-4, A-6	0	0-2	90-100	85-100	60-95	30-70	25-45	7-18
	22-32	Sandy loam, loam, sandy clay loam	CL, SM, ML, SC	A-2, A-4	0	0-5	80-100	75-100	60-95	20-55	0-25	NP-9
	32-60	Sandy loam, loam, loamy sand	SM	A-2, A-4	0	0-15	75-100	70-100	60-90	15-50	0-14	NP
Hayesville	0-5	Loam	CL, ML, SM, SC	A-4	0	0-5	90-100	85-95	70-95	35-60	25-35	NP-10
	5-36	Clay loam, clay	CL, CH, MH, ML	A-6, A-7	0	0-5	90-100	85-100	70-100	55-80	36-66	11-35
	36-60	Fine sandy loam, loam, sandy clay loam	ML, CL, SC, SM	A-4, A-6	0	5-15	90-100	90-95	65-90	40-55	25-40	NP-12

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
EvC:												
Evard	0-5	Loam	ML	A-4	0	0-5	90-100	90-100	85-95	60-75	0-35	NP-9
	5-22	Sandy clay loam, clay loam	CL, ML, SM, SC	A-2, A-7-6, A-4, A-6	0	0-2	90-100	85-100	60-95	30-70	25-45	7-18
	22-32	Sandy loam, loam, sandy clay loam	ML, CL, SC, SM	A-2, A-4	0	0-5	80-100	75-100	60-95	20-55	0-25	NP-9
	32-60	Sandy loam, loam, loamy sand	SM	A-2, A-4	0	0-15	75-100	70-100	60-90	15-50	0-14	NP
Hayesville	0-5	Loam	ML, CL, SC, SM	A-4	0	0-5	90-100	85-95	70-95	35-60	25-35	NP-10
	5-36	Clay loam, clay	CH, ML, CL, MH	A-6, A-7	0	0-5	90-100	85-100	70-100	55-80	36-66	11-35
	36-60	Fine sandy loam, loam, sandy clay loam	ML, CL, SC, SM	A-4, A-6	0	5-15	90-100	90-95	65-90	40-55	25-40	NP-12
EvD:												
Evard	0-5	Loam	ML	A-4	0	0-5	90-100	90-100	85-95	60-75	0-35	NP-9
	5-22	Sandy clay loam, clay loam	CL, ML, SM, SC	A-4, A-2, A-6, A-7-6	0	0-2	90-100	85-100	60-95	30-70	25-45	7-18
	22-32	Sandy loam, loam, sandy clay loam	ML, CL, SC, SM	A-2, A-4	0	0-5	80-100	75-100	60-95	20-55	0-25	NP-9
	32-60	Sandy loam, loam, loamy sand	SM	A-2, A-4	0	0-15	75-100	70-100	60-90	15-50	0-14	NP
Hayesville	0-5	Loam	ML, SC, CL, SM	A-4	0	0-5	90-100	85-95	70-95	35-60	25-35	NP-10
	5-36	Clay loam, clay	CL, CH, MH, ML	A-6, A-7	0	0-5	90-100	85-100	70-100	55-80	36-66	11-35
	36-60	Fine sandy loam, loam, sandy clay loam	CL, SM, ML, SC	A-4, A-6	0	5-15	90-100	90-95	65-90	40-55	25-40	NP-12
GeC:												
Gullied land	0-60	Variable	---	---	0	0	---	---	---	---	0-14	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
GeC:												
Evard	0-5	Loam	ML	A-4	0	0-5	90-100	90-100	85-95	60-75	0-35	NP-9
	5-22	Sandy clay loam, clay loam	ML, CL, SC, SM	A-2, A-4, A-7-6, A-6	0	0-2	90-100	85-100	60-95	30-70	25-45	7-18
	22-32	Sandy loam, loam, sandy clay loam	CL, SM, ML, SC	A-2, A-4	0	0-5	80-100	75-100	60-95	20-55	0-25	NP-9
	32-60	Sandy loam, loam, loamy sand	SM	A-2, A-4	0	0-15	75-100	70-100	60-90	15-50	0-14	NP
GeD:												
Gullied land	0-60	Variable	---	---	0	0	---	---	---	---	0-14	---
Evard	0-5	Loam	ML	A-4	0	0-5	90-100	90-100	85-95	60-75	0-35	NP-9
	5-22	Sandy clay loam, clay loam	ML, CL, SC, SM	A-4, A-2, A-6, A-7-6	0	0-2	90-100	85-100	60-95	30-70	25-45	7-18
	22-32	Sandy loam, loam, sandy clay loam	CL, SM, ML, SC	A-2, A-4	0	0-5	80-100	75-100	60-95	20-55	0-25	NP-9
	32-60	Sandy loam, loam, loamy sand	SM	A-2, A-4	0	0-15	75-100	70-100	60-90	15-50	0-14	NP
GuE:												
Gullied land	0-60	Variable	---	---	0	0	---	---	---	---	0-14	---
Ha:												
Hamblen	0-9	Silt loam	CL, ML, CL-ML	A-4, A-6	---	0-2	90-100	80-100	65-95	55-85	22-38	3-14
	9-46	Silt loam, loam, clay loam	CL, CL-ML, ML	A-4, A-6	---	0-2	80-100	75-100	60-95	55-85	22-40	3-17
	46-60	Silt loam, loam, clay loam	CL, ML, CL-ML, GC	A-2, A-6, A-4	---	0-5	55-100	45-95	35-90	30-80	22-40	3-17
JeD:												
Jeffrey	0-11	Channery loam	ML, SM	A-4	0	0-10	80-95	70-90	65-80	40-60	0-30	NP-7
	11-28	Cobbly sandy loam, cobbly loam, very cobbly loam	GM, ML, SM	A-2, A-4	0	5-20	65-90	55-85	45-75	30-60	0-30	NP-7
	28-32	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
JeF:												
Jeffrey---------	0-11	Channery loam	ML, SM	A-4	0	0-10	80-95	70-90	65-80	40-60	0-30	NP-7
	11-28	Cobbly sandy loam, cobbly loam, very cobbly loam	GM, ML, SM	A-2, A-4	0	5-20	65-90	55-85	45-75	30-60	0-30	NP-7
	28-32	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
JkD:												
Junaluska-------	0-11	Fine sandy loam	MH, ML, SM	A-4, A-6, A-5	0	0-5	85-100	80-100	65-89	35-60	29-56	NP-14
	11-21	Channery loam, channery clay loam, sandy clay loam	CL, ML, SM, SC	A-6, A-7	0	5-15	75-100	60-100	55-95	40-73	29-50	10-20
	21-26	Channery loam, channery clay loam, sandy clay loam	ML, CL, SC, SM	A-6, A-7	0-1	5-15	70-100	55-100	40-91	35-55	25-40	3-10
	26-31	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
JkF:												
Junaluska-------	0-11	Fine sandy loam	MH, ML, SM	A-4, A-5, A-6	0	0-5	85-100	80-100	65-89	35-60	29-56	NP-14
	11-21	Channery loam, channery clay loam, sandy clay loam	ML, CL, SC, SM	A-6, A-7	0	5-15	75-100	60-100	55-95	40-73	29-50	10-20
	21-26	Channery loam, channery clay loam, sandy clay loam	ML, CL, SC, SM	A-6, A-7	0-1	5-15	70-100	55-100	40-91	35-55	25-40	3-10
	26-31	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
JnC:												
Junaluska-------	0-11	Fine sandy loam	MH, ML, SM	A-4, A-6, A-5	0	0-5	85-100	80-100	65-89	35-60	29-56	NP-14
	11-21	Channery loam, channery clay loam, sandy clay loam	CL, SM, ML, SC	A-6, A-7	0	5-15	75-100	60-100	55-95	40-73	29-50	10-20
	21-26	Channery loam, channery clay loam, sandy clay loam	CL, SM, ML, SC	A-6, A-7	0-1	5-15	70-100	55-100	40-91	35-55	25-40	3-10
	26-31	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
JnC:												
Brasstown-------	0-6	Loam	MH, ML, SM	A-5, A-4, A-7-5	0	0-5	85-100	80-100	65-95	35-60	30-57	NP-14
	6-29	Channery loam, channery sandy clay loam, sandy clay loam	ML, SC, CL, SM	A-6, A-7-6	0-3	2-15	75-100	70-100	55-97	40-73	35-50	11-20
	29-46	Channery fine sandy loam, channery very fine sandy loam, loam	GM, ML, SM	A-4	0-3	2-15	70-100	70-100	40-96	35-55	25-35	NP-10
	46-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
JnD:												
Junaluska-------	0-11	Fine sandy loam	MH, SM, ML	A-4, A-5, A-6	0	0-5	85-100	80-100	65-89	35-60	29-56	NP-14
	11-21	Channery loam, channery clay loam, sandy clay loam	CL, SM, ML, SC	A-6, A-7	0	5-15	75-100	60-100	55-95	40-73	29-50	10-20
	21-26	Channery loam, channery clay loam, sandy clay loam	ML, CL, SC, SM	A-6, A-7	0-1	5-15	70-100	55-100	40-91	35-55	25-40	3-10
	26-31	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Brasstown-------	0-6	Loam	MH, ML, SM	A-4, A-7-5, A-5	0	0-5	85-100	80-100	65-95	35-60	30-57	NP-14
	6-29	Channery loam, channery sandy clay loam, sandy clay loam	CL, SM, ML, SC	A-6, A-7-6	0-3	2-15	75-100	70-100	55-97	40-73	35-50	11-20
	29-46	Channery fine sandy loam, channery very fine sandy loam, loam	ML, GM, SM	A-4	0-3	2-15	70-100	70-100	40-96	35-55	25-35	NP-10
	46-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
JtF:												
Junaluska-------	0-11	Fine sandy loam	MH, ML, SM	A-4, A-5, A-6	0	0-5	85-100	80-100	65-89	35-60	29-56	NP-14
	11-21	Channery loam, channery clay loam, sandy clay loam	SM, SC, CL, ML	A-6, A-7	0	5-15	75-100	60-100	55-95	40-73	29-50	10-20
	21-26	Channery loam, channery clay loam, sandy clay loam	ML, CL, SC, SM	A-6, A-7	0-1	5-15	70-100	55-100	40-91	35-55	25-40	3-10
	26-31	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Citico----------	0-4	Channery silt loam	CL, GC-GM, CL-ML, GC	A-4	---	5-10	60-85	55-85	50-85	45-75	0-30	3-10
	4-12	Channery silt loam	CL, CL-ML, GC-GM, GC	A-4, A-6	---	5-10	60-85	55-85	50-85	49-80	25-35	7-14
	12-45	Channery silt loam	CL, GC, SC	A-4, A-6	---	5-15	50-80	45-80	40-80	36-75	25-35	7-14
	45-50	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
JuF:												
Junaluska-------	0-11	Fine sandy loam	MH, SM, ML	A-4, A-5, A-6	0	0-5	85-100	80-100	65-89	35-60	29-56	NP-14
	11-21	Channery loam, channery clay loam, sandy clay loam	ML, SC, CL, SM	A-6, A-7	0	5-15	75-100	60-100	55-95	40-73	29-50	10-20
	21-26	Channery loam, channery clay loam, sandy clay loam	CL, SM, ML, SC	A-6, A-7	0-1	5-15	70-100	55-100	40-91	35-55	25-40	3-10
	26-31	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Tsali-----------	0-8	Channery loam	ML, SM	A-4, A-5	0-1	5-15	70-95	55-90	40-80	35-55	30-50	NP-10
	8-18	Channery sandy clay loam, channery loam, channery clay loam	ML, CL, SC, SM	A-6, A-7	0-10	5-15	75-95	60-90	55-80	40-70	30-50	11-20
	18-60	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
KeC:												
Keener----------	0-9	Loam	CL-ML, SM, ML, SC-SM	A-4	0	0-5	96-100	86-98	68-98	40-80	0-25	NP-7
	9-51	Cobbly clay loam, cobbly sandy clay loam	CL-ML, CL, ML	A-4	0	15-35	95-100	95-100	70-100	55-85	18-30	3-10
	51-65	Very cobbly clay loam, very cobbly sandy clay loam	SC, CL-ML, SC-SM, SM	A-4	0	15-50	95-100	95-100	70-100	40-70	18-30	3-10
KeD:												
Keener----------	0-9	Loam	CL-ML, SM, ML, SC-SM	A-4	0	0-5	96-100	86-98	68-98	40-80	0-25	NP-7
	9-51	Cobbly clay loam, cobbly sandy clay loam	CL, CL-ML, ML	A-4	0	15-35	95-100	95-100	70-100	55-85	18-30	3-10
	51-65	Very cobbly clay loam, very cobbly sandy clay loam	SC, SC-SM, CL-ML, SM	A-4	0	15-50	95-100	95-100	70-100	40-70	18-30	3-10
LeB:												
Leadvale--------	0-9	Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	85-95	65-85	18-32	2-10
	9-22	Silt loam, silty clay loam, loam	CL, ML, CL-ML	A-4, A-6	0	0	100	95-100	90-98	75-90	22-36	3-14
	22-60	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	95-100	80-98	70-90	23-42	3-18
LkC:												
Lostcove--------	0-5	Cobbly loam	GM, SM, SC, SC-SM	A-1, A-4, A-2	0-5	5-30	65-85	55-75	30-60	20-40	20-30	NP-10
	5-76	Very cobbly loam, extremely cobbly loam, very gravelly clay loam	GC-GM, GC, GM, SM	A-2, A-7-6, A-4, A-6	0-5	10-70	23-72	22-60	19-50	15-40	20-50	7-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
LkC:												
Keener	0-13	Cobbly loam	ML, SC-SM, CL-ML, SM	A-4	0	5-35	85-95	80-95	65-95	40-80	0-25	NP-7
	13-56	Cobbly clay loam, cobbly sandy clay loam	CL, CL-ML, ML	A-4	0	15-35	95-100	95-100	70-100	55-85	18-30	3-10
	56-70	Very cobbly clay loam, very cobbly sandy clay loam	CL-ML, SM, SC, SC-SM	A-4	0	15-50	95-100	95-100	70-100	40-70	18-30	3-10
LkD:												
Lostcove	0-5	Cobbly loam	SC, GM, SC-SM, SM	A-1, A-4, A-2	0-5	5-30	65-85	55-75	30-60	20-40	20-30	NP-10
	5-76	Very cobbly loam, extremely cobbly loam, very gravelly clay loam	GC-GM, GM, GC, SM	A-4, A-2, A-6, A-7-6	0-5	10-70	23-72	22-60	19-50	15-40	20-50	7-20
Keener	0-13	Cobbly loam	ML, SC-SM, CL-ML, SM	A-4	0	5-35	85-95	80-95	65-95	40-80	0-25	NP-7
	13-56	Cobbly clay loam, cobbly sandy clay loam	CL, CL-ML, ML	A-4	0	15-35	95-100	95-100	70-100	55-85	18-30	3-10
	56-70	Very cobbly clay loam, very cobbly sandy clay loam	SC, SC-SM, CL-ML, SM	A-4	0	15-50	95-100	95-100	70-100	40-70	18-30	3-10
LkF:												
Lostcove	0-5	Cobbly loam	SC, GM, SC-SM, SM	A-1, A-2, A-4	0-5	5-30	65-85	55-75	30-60	20-40	20-30	NP-10
	5-76	Very cobbly loam, extremely cobbly loam, very gravelly clay loam	GC, SM, GC-GM, GM	A-2, A-7-6, A-4, A-6	0-5	10-70	23-72	22-60	19-50	15-40	20-50	7-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
LkF:												
Keener----------	0-13	Cobbly loam	CL-ML, ML, SM, SC-SM	A-4	0	5-35	85-95	80-95	65-95	40-80	0-25	NP-7
	13-56	Cobbly clay loam, cobbly sandy clay loam	CL, CL-ML, ML	A-4	0	15-35	95-100	95-100	70-100	55-85	18-30	3-10
	56-70	Very cobbly clay loam, very cobbly sandy clay loam	CL-ML, SM, SC, SC-SM	A-4	0	15-50	95-100	95-100	70-100	40-70	18-30	3-10
McC:												
McCamy----------	0-7	Loam	CL-ML, ML	A-4	---	0-5	90-100	85-100	70-95	55-80	0-35	NP-10
	7-26	Clay loam, sandy clay loam, loam	ML, SC, CL, SM	A-4, A-6	---	0-5	90-100	85-100	75-100	40-80	0-35	3-15
	26-38	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	38-42	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
McD:												
McCamy----------	0-7	Loam	CL-ML, ML	A-4	---	0-5	90-100	85-100	70-95	55-80	0-35	NP-10
	7-26	Clay loam, sandy clay loam, loam	ML, SC, CL, SM	A-4, A-6	---	0-5	90-100	85-100	75-100	40-80	0-35	3-15
	26-38	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
	38-42	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
MnC:												
Minvale---------	0-13	Gravelly silt loam	GC, CL, GM, ML	A-4	0	0-5	55-80	50-75	40-70	36-60	20-30	NP-10
	13-28	Gravelly silty clay loam, gravelly silt loam, gravelly loam	CL, GC-GM, CL-ML, GC	A-4, A-6	0	0-5	50-75	50-75	40-70	36-65	20-40	5-15
	28-68	Gravelly silty clay loam, gravelly silty clay	CL, GC, SC, ML	A-6, A-4, A-7	0	0-5	55-80	50-75	40-70	36-65	25-50	7-23

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
MnD:												
Minvale---------	0-13	Gravelly silt loam	GC, CL, GM, ML	A-4	0	0-5	55-80	50-75	40-70	36-60	20-30	NP-10
	13-28	Gravelly silty clay loam, gravelly silt loam, gravelly loam	CL, GC-GM, CL-ML, GC	A-4, A-6	0	0-5	50-75	50-75	40-70	36-65	20-40	5-15
	28-68	Gravelly silty clay loam, gravelly silty clay	CL, GC, SC, ML	A-6, A-4, A-7	0	0-5	55-80	50-75	40-70	36-65	25-50	7-23
NeC:												
Needmore--------	0-7	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	80-90	18-30	3-10
	7-29	Silty clay, clay	CH, MH, CL	A-7	0	0	95-100	90-100	85-100	80-95	43-65	18-35
	29-34	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
NeD:												
Needmore--------	0-7	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	80-90	18-30	3-10
	7-29	Silty clay, clay	CH, CL, MH	A-7	0	0	95-100	90-100	85-100	80-95	43-65	18-35
	29-34	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
SeB:												
Sequatchie------	0-9	Silt loam	CL, CL-ML, SM, ML	A-2, A-4	---	0-10	85-100	75-100	65-95	30-70	15-27	2-10
	9-41	Clay loam, loam, silt loam	CL, CL-ML	A-4, A-6	---	0-10	85-100	75-100	65-95	55-85	20-32	5-15
	41-68	Sandy loam, loam, fine sandy loam	CL, SM, CL-ML, ML	A-2, A-4	---	0-15	75-100	65-100	45-85	25-65	15-25	2-10
Sm:												
Slickens.												
Su:												
Suches----------	0-10	Loam	CL-ML, SM	A-4	0	0	95-100	95-100	70-100	40-70	0-30	NP-7
	10-41	Loam, sandy clay loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	95-100	95-100	70-100	55-85	25-50	4-22
	41-60	Variable	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
TaE:												
Talbott	0-4	Silt loam	CL	A-4, A-6	0	0-5	95-100	90-100	85-95	75-95	25-40	8-16
	4-8	Clay, silty clay	CH, CL	A-7	0	0-10	95-100	90-100	85-95	80-95	41-80	20-45
	8-35	Clay, silty clay	CH, CL	A-7	0	0-10	95-100	90-100	85-95	80-95	41-80	20-45
	35-40	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
TeB:												
Tate	0-10	Loam	ML, SM	A-4, A-6	0	0-5	96-100	86-98	68-98	40-80	15-38	NP-13
	10-60	Clay loam, sandy clay loam, loam	CL, SC-SM, CL-ML, ML	A-4, A-6	0-1	0-15	94-100	87-100	75-99	40-85	20-40	5-15
To:												
Toccoa	0-10	Loam	ML	A-4	0	0	98-100	95-100	75-90	55-80	0-30	NP-4
	10-60	Sandy loam, loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-100	30-55	0-30	NP-4
TuF:												
Tusquitee	0-8	Loam	MH, ML	A-4, A-5	0-1	0-10	85-100	80-100	70-95	50-65	25-58	NP-10
	8-26	Loam, sandy loam, fine sandy loam	ML, SC-SM, SM	A-4	0-1	0-15	90-100	75-100	65-95	36-65	20-40	NP-10
	26-60	Gravelly sandy loam, gravelly fine sandy loam, cobbly fine sandy loam	GM, SC-SM, GC-GM, SM	A-2, A-1, A-4	2-15	5-35	45-98	40-85	30-75	12-50	20-35	NP-7
Ud:												
Udifluvents.												
UnD:												
Unicoi	0-3	Gravelly loam	SC-SM, SM	A-1-b, A-2	0	0-10	70-85	50-70	30-50	20-35	0-25	NP-6
	3-17	Very cobbly loam, very cobbly sandy loam, very stony loam	GM, GC-GM, SC-SM, SM	A-1-b, A-2	0	20-50	60-75	40-65	30-50	20-35	0-25	NP-6
	17-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
UnD:												
Rock outcrop----	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
UnF:												
Unicoi----------	0-3	Gravelly loam	SC-SM, SM	A-1-b, A-2	0	0-10	70-85	50-70	30-50	20-35	0-25	NP-6
	3-17	Very cobbly loam, very cobbly sandy loam, very stony loam	GC-GM, GM, SM, SC-SM	A-1-b, A-2	0	20-50	60-75	40-65	30-50	20-35	0-25	NP-6
	17-22	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
W:												
Water.												
WaF:												
Wallen----------	0-4	Channery sandy loam	SC-SM, SM	A-1, A-2, A-4	0-5	0-20	70-85	60-80	40-60	20-40	0-35	NP-10
	4-30	Very cobbly loam, very cobbly silt loam, very channery fine sandy loam	GC-GM, GM, SM, SC-SM	A-2, A-1, A-4	0	25-55	35-65	30-60	20-50	10-40	0-35	NP-10
	30-34	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
WbB2:												
Waynesboro------	0-7	Loam	CL-ML, ML, CL, SM	A-4	0	0-5	85-100	80-100	70-95	43-70	18-30	2-9
	7-11	Clay loam, loam, sandy clay loam	CL, SC	A-4, A-6, A-7	0	0-5	90-100	85-100	75-95	45-75	30-41	9-17
	11-72	Clay loam, sandy clay, clay	MH, CL, ML	A-6, A-4, A-7	0	0-5	90-100	80-100	70-98	55-75	35-68	9-32

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
WbC2:												
Waynesboro------	0-7	Loam	CL-ML, CL, ML, SM	A-4	0	0-5	85-100	80-100	70-95	43-70	18-30	2-9
	7-11	Clay loam, loam, sandy clay loam	CL, SC	A-4, A-6, A-7	0	0-5	90-100	85-100	75-95	45-75	30-41	9-17
	11-72	Clay loam, sandy clay, clay	CL, MH, ML	A-6, A-4, A-7	0	0-5	90-100	80-100	70-98	55-75	35-68	9-32
WbD2:												
Waynesboro------	0-7	Loam	CL, SM, CL-ML, ML	A-4	0	0-5	85-100	80-100	70-95	43-70	18-30	2-9
	7-11	Clay loam, loam, sandy clay loam	CL, SC	A-4, A-6, A-7	0	0-5	90-100	85-100	75-95	45-75	30-41	9-17
	11-72	Clay loam, sandy clay, clay	CL, MH, ML	A-6, A-4, A-7	0	0-5	90-100	80-100	70-98	55-75	35-68	9-32
WbD3:												
Waynesboro------	0-3	Clay loam	CL, CL-ML, SM, ML	A-4	0	0-5	85-100	80-100	70-95	43-70	18-30	2-9
	3-11	Clay loam, loam, sandy clay loam	CL, SC	A-4, A-6, A-7	0	0-5	90-100	85-100	75-95	45-75	30-41	9-17
	11-72	Clay loam, sandy clay, clay	CL, ML, MH	A-6, A-4, A-7	0	0-5	90-100	80-100	70-98	55-75	35-68	9-32
Wt:												
Whitwell--------	0-8	Loam	CL, CL-ML, ML	A-4	---	0-3	80-100	75-100	70-100	55-95	18-28	3-10
	8-60	Clay loam, loam, silt loam	CL, SC, CL-ML, ML	A-4, A-6	---	0-3	80-100	75-100	60-90	40-80	18-35	3-15

Table 15.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
								Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
AnC2:										
Apison	0-6	12-25	1.45-1.55	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	6-30	23-35	1.48-1.62	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.37	.37	
	30-61	---	---	0.00-0.20	---	---	---	---	---	
ApC2:										
Apison	0-6	12-25	1.45-1.55	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	6-30	23-35	1.48-1.62	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.37	.37	
	30-61	---	---	0.00-0.20	---	---	---	---	---	
Armuchee	0-4	22-27	1.35-1.45	0.60-2.00	0.12-0.17	0.0-2.9	0.5-2.0	.28	.32	3
	4-13	37-47	1.40-1.50	0.20-0.60	0.10-0.14	3.0-5.9	0.0-0.5	.37	.28	
	13-21	35-45	1.40-1.50	0.20-0.60	0.05-0.10	3.0-5.9	0.0-0.5	.32	.28	
	21-25	---	---	0.00-0.20	---	---	---	---	---	
ApD2:										
Apison	0-6	12-25	1.45-1.55	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	3
	6-30	23-35	1.48-1.62	0.60-2.00	0.13-0.18	0.0-2.9	0.0-0.5	.37	.37	
	30-61	---	---	0.00-0.20	---	---	---	---	---	
Armuchee	0-4	22-27	1.35-1.45	0.60-2.00	0.12-0.17	0.0-2.9	0.5-2.0	.28	.32	3
	4-13	37-47	1.40-1.50	0.20-0.60	0.10-0.14	3.0-5.9	0.0-0.5	.37	.28	
	13-21	35-45	1.40-1.50	0.20-0.60	0.05-0.10	3.0-5.9	0.0-0.5	.32	.28	
	21-25	---	---	0.00-0.20	---	---	---	---	---	
Ar:										
Arkaqua	0-6	10-20	1.20-1.50	0.60-2.00	0.12-0.20	0.0-2.9	2.0-5.0	.24	.24	4
	6-37	15-34	1.20-1.55	0.60-2.00	0.12-0.20	0.0-2.9	1.0-2.0	.28	.28	
	37-50	10-30	1.30-1.60	0.60-2.00	0.12-0.20	0.0-2.9	1.0-2.0	.28	.28	
	50-61	---	---	---	---	---	---	---	---	
Suches	0-10	10-25	1.30-1.50	0.60-2.00	0.11-0.18	0.0-2.9	2.0-4.0	.24	.24	5
	10-41	18-38	1.45-1.65	0.60-2.00	0.12-0.20	0.0-2.9	0.5-2.0	.28	.28	
	41-60	---	---	---	---	---	---	---	---	
AuC2:										
Armuchee	0-4	22-27	1.35-1.45	0.60-2.00	0.12-0.17	0.0-2.9	0.5-2.0	.28	.32	3
	4-13	37-47	1.40-1.50	0.20-0.60	0.10-0.14	3.0-5.9	0.0-0.5	.37	.28	
	13-21	35-45	1.40-1.50	0.20-0.60	0.05-0.10	3.0-5.9	0.0-0.5	.32	.28	
	21-25	---	---	0.00-0.20	---	---	---	---	---	
AuD2:										
Armuchee	0-4	22-27	1.35-1.45	0.60-2.00	0.12-0.17	0.0-2.9	0.5-2.0	.28	.32	3
	4-13	37-47	1.40-1.50	0.20-0.60	0.10-0.14	3.0-5.9	0.0-0.5	.37	.28	
	13-21	35-45	1.40-1.50	0.20-0.60	0.05-0.10	3.0-5.9	0.0-0.5	.32	.28	
	21-25	---	---	0.00-0.20	---	---	---	---	---	
AuE:										
Armuchee	0-8	22-27	1.35-1.45	0.60-2.00	0.12-0.17	0.0-2.9	0.5-2.0	.28	.32	3
	8-17	37-47	1.40-1.50	0.20-0.60	0.10-0.14	3.0-5.9	0.0-0.5	.37	.28	
	17-24	35-45	1.40-1.50	0.20-0.60	0.05-0.10	3.0-5.9	0.0-0.5	.32	.28	
	24-60	---	---	0.00-0.20	---	---	---	---	---	
BrC:										
Brevard	0-7	10-25	1.30-1.50	2.00-6.00	0.16-0.24	0.0-2.9	1.0-5.0	.24	.24	5
	7-70	20-35	1.30-1.40	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.24	.24	
BrD:										
Brevard	0-7	10-25	1.30-1.50	2.00-6.00	0.16-0.24	0.0-2.9	1.0-5.0	.24	.24	5
	7-70	20-35	1.30-1.40	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.24	.24	

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
								Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
BrE:										
Brevard	0-7	10-25	1.30-1.50	2.00-6.00	0.16-0.24	0.0-2.9	1.0-5.0	.24	.24	5
	7-70	20-35	1.30-1.40	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.24	.24	
CaF:										
Cataska	0-5	12-22	1.30-1.40	2.00-20.00	0.10-0.14	0.0-2.9	1.0-3.0	.20	.32	2
	5-15	12-22	1.30-1.45	2.00-6.00	0.04-0.09	0.0-2.9	0.5-2.0	.15	.32	
	15-24	---	---	0.01-0.20	---	---	0.5-2.0	---	---	
	24-28	---	---	---	---	---	---	---	---	
Rock outcrop	0-60	---	---	0.06-6.00	---	---	---	---	---	---
CaG:										
Cataska	0-5	12-22	1.30-1.40	2.00-20.00	0.10-0.14	0.0-2.9	1.0-3.0	.20	.32	2
	5-15	12-22	1.30-1.45	2.00-6.00	0.04-0.09	0.0-2.9	0.5-2.0	.15	.32	
	15-24	---	---	0.01-0.20	---	---	0.5-2.0	---	---	
	24-28	---	---	---	---	---	---	---	---	
Rock outcrop	0-60	---	---	0.06-6.00	---	---	---	---	---	---
CcD:										
Citico	0-4	15-25	1.30-1.45	0.60-2.00	0.09-0.15	0.0-2.9	---	.24	.32	3
	4-12	18-27	1.30-1.45	0.60-2.00	0.09-0.15	0.0-2.9	---	.24	.32	
	12-45	15-25	1.30-1.45	0.60-2.00	0.08-0.14	0.0-2.9	---	.24	.32	
	45-50	---	---	0.00-0.01	---	---	---	---	---	
CcF:										
Citico	0-4	15-25	1.30-1.45	0.60-2.00	0.09-0.15	0.0-2.9	---	.24	.32	3
	4-12	18-27	1.30-1.45	0.60-2.00	0.09-0.15	0.0-2.9	---	.24	.32	
	12-45	15-25	1.30-1.45	0.60-2.00	0.08-0.14	0.0-2.9	---	.24	.32	
	45-50	---	---	0.00-0.01	---	---	---	---	---	
CoC2:										
Collegedale	0-6	20-27	1.30-1.50	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	5
	6-65	40-60	1.45-1.60	0.20-0.60	0.12-0.16	3.0-5.9	0.0-0.5	.24	.24	
CoD2:										
Collegedale	0-6	20-27	1.30-1.50	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	5
	6-65	40-60	1.45-1.60	0.20-0.60	0.12-0.16	3.0-5.9	0.0-0.5	.24	.24	
DeB2:										
Decatur	0-6	15-27	1.25-1.55	0.60-2.00	0.18-0.20	0.0-2.9	0.5-2.0	.32	.32	5
	6-67	35-60	1.20-1.50	0.60-2.00	0.12-0.16	3.0-5.9	---	.24	.24	
DeC2:										
Decatur	0-6	15-27	1.25-1.55	0.60-2.00	0.18-0.20	0.0-2.9	0.5-2.0	.32	.32	5
	6-67	35-60	1.20-1.50	0.60-2.00	0.12-0.16	3.0-5.9	---	.24	.24	
DeD2:										
Decatur	0-6	15-27	1.25-1.55	0.60-2.00	0.18-0.20	0.0-2.9	0.5-2.0	.32	.32	5
	6-67	35-60	1.20-1.50	0.60-2.00	0.12-0.16	3.0-5.9	---	.24	.24	
DtD:										
Ditney	0-7	5-18	1.50-1.65	2.00-6.00	0.10-0.15	0.0-2.9	1.0-3.0	.24	.24	2
	7-15	5-18	1.50-1.65	2.00-6.00	0.10-0.15	0.0-2.9	1.0-3.0	.24	.24	
	15-35	5-18	1.50-1.65	2.00-6.00	0.05-0.13	0.0-2.9	1.0-3.0	.17	.24	
	35-40	---	---	0.00-0.01	---	---	---	---	---	
DtF:										
Ditney	0-7	5-18	1.50-1.65	2.00-6.00	0.10-0.15	0.0-2.9	1.0-3.0	.24	.24	2
	7-15	5-18	1.50-1.65	2.00-6.00	0.10-0.15	0.0-2.9	1.0-3.0	.24	.24	
	15-35	5-18	1.50-1.65	2.00-6.00	0.05-0.13	0.0-2.9	1.0-3.0	.17	.24	
	35-40	---	---	0.00-0.01	---	---	---	---	---	

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
								Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
Ea:										
Emory	0-8	20-27	1.20-1.40	0.60-2.00	0.17-0.21	0.0-2.9	1.0-4.0	.37	.37	5
	8-32	20-35	1.25-1.45	0.60-2.00	0.17-0.21	0.0-2.9	---	.37	.37	
	32-60	32-45	1.35-1.55	0.60-2.00	0.16-0.20	0.0-2.9	---	.37	.37	
EdC:										
Evard	0-5	7-25	1.30-1.50	0.60-2.00	0.15-0.20	0.0-2.9	1.0-5.0	.28	.28	5
	5-22	18-35	1.30-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.24	
	22-32	12-30	1.20-1.40	0.60-2.00	0.10-0.25	0.0-2.9	0.0-0.5	.24	.24	
	32-60	5-20	1.20-1.40	0.60-2.00	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24	
EdD:										
Evard	0-5	7-25	1.30-1.50	0.60-2.00	0.15-0.20	0.0-2.9	1.0-5.0	.28	.28	5
	5-22	18-35	1.30-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.24	
	22-32	12-30	1.20-1.40	0.60-2.00	0.10-0.25	0.0-2.9	0.0-0.5	.24	.24	
	32-60	5-20	1.20-1.40	0.60-2.00	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24	
ErC:										
Evard	0-5	7-25	1.30-1.50	0.60-2.00	0.15-0.20	0.0-2.9	1.0-5.0	.28	.28	5
	5-22	18-35	1.30-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.24	
	22-32	12-30	1.20-1.40	0.60-2.00	0.10-0.25	0.0-2.9	0.0-0.5	.24	.24	
	32-60	5-20	1.20-1.40	0.60-2.00	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24	
Hayesville	0-5	10-25	1.35-1.60	2.00-6.00	0.12-0.20	0.0-2.9	1.0-3.0	.24	.24	3
	5-36	30-50	1.20-1.35	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.28	.28	
	36-60	5-25	1.45-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24	
ErD:										
Evard	0-5	7-25	1.30-1.50	0.60-2.00	0.15-0.20	0.0-2.9	1.0-5.0	.28	.28	5
	5-22	18-35	1.30-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.24	
	22-32	12-30	1.20-1.40	0.60-2.00	0.10-0.25	0.0-2.9	0.0-0.5	.24	.24	
	32-60	5-20	1.20-1.40	0.60-2.00	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24	
Hayesville	0-5	10-25	1.35-1.60	2.00-6.00	0.12-0.20	0.0-2.9	1.0-3.0	.24	.24	3
	5-36	30-50	1.20-1.35	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.28	.28	
	36-60	5-25	1.45-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24	
EvC:										
Evard	0-5	7-25	1.30-1.50	0.60-2.00	0.15-0.20	0.0-2.9	1.0-5.0	.28	.28	5
	5-22	18-35	1.30-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.24	
	22-32	12-30	1.20-1.40	0.60-2.00	0.10-0.25	0.0-2.9	0.0-0.5	.24	.24	
	32-60	5-20	1.20-1.40	0.60-2.00	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24	
Hayesville	0-5	10-25	1.35-1.60	2.00-6.00	0.12-0.20	0.0-2.9	1.0-3.0	.24	.24	3
	5-36	30-50	1.20-1.35	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.28	.28	
	36-60	5-25	1.45-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24	
EvD:										
Evard	0-5	7-25	1.30-1.50	0.60-2.00	0.15-0.20	0.0-2.9	1.0-5.0	.28	.28	5
	5-22	18-35	1.30-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.24	
	22-32	12-30	1.20-1.40	0.60-2.00	0.10-0.25	0.0-2.9	0.0-0.5	.24	.24	
	32-60	5-20	1.20-1.40	0.60-2.00	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24	
Hayesville	0-5	10-25	1.35-1.60	2.00-6.00	0.12-0.20	0.0-2.9	1.0-3.0	.24	.24	3
	5-36	30-50	1.20-1.35	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.28	.28	
	36-60	5-25	1.45-1.65	2.00-6.00	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24	
GeC:										
Gullied land	0-60	---	---	---	0.00-0.00	---	---	---	---	---
Evard	0-5	7-25	1.30-1.50	0.60-2.00	0.15-0.20	0.0-2.9	1.0-5.0	.28	.28	5
	5-22	18-35	1.30-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.24	
	22-32	12-30	1.20-1.40	0.60-2.00	0.10-0.25	0.0-2.9	0.0-0.5	.24	.24	
	32-60	5-20	1.20-1.40	0.60-2.00	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24	

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
								Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
GeD:										
Gullied land	0-60	---	---	---	0.00-0.00	---	---	---	---	---
Evard	0-5	7-25	1.30-1.50	0.60-2.00	0.15-0.20	0.0-2.9	1.0-5.0	.28	.28	5
	5-22	18-35	1.30-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.24	
	22-32	12-30	1.20-1.40	0.60-2.00	0.10-0.25	0.0-2.9	0.0-0.5	.24	.24	
	32-60	5-20	1.20-1.40	0.60-2.00	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24	
GuE:										
Gullied land	0-60	---	---	---	0.00-0.00	---	---	---	---	---
Ha:										
Hamblen	0-9	15-25	1.30-1.45	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.32	.32	5
	9-46	18-32	1.30-1.45	0.60-2.00	0.17-0.20	0.0-2.9	---	.32	.32	
	46-60	18-32	1.30-1.45	0.60-2.00	0.17-0.20	0.0-2.9	---	.32	.32	
JeD:										
Jeffrey	0-11	10-18	1.45-1.55	0.60-6.00	0.10-0.15	0.0-2.9	3.0-8.0	.17	.24	2
	11-28	15-28	1.45-1.55	0.60-6.00	0.07-0.13	0.0-2.9	1.0-2.0	.17	.24	
	28-32	---	---	---	---	---	---	---	---	
JeF:										
Jeffrey	0-11	10-18	1.45-1.55	0.60-6.00	0.10-0.15	0.0-2.9	3.0-8.0	.17	.24	2
	11-28	15-28	1.45-1.55	0.60-6.00	0.07-0.13	0.0-2.9	1.0-2.0	.17	.24	
	28-32	---	---	---	---	---	---	---	---	
JkD:										
Junaluska	0-11	5-18	1.35-1.60	1.98-5.95	0.12-0.20	0.0-2.9	1.0-5.0	.28	.28	3
	11-21	18-35	1.30-1.65	0.60-2.00	0.12-0.18	0.0-2.9	0.5-1.0	.15	.24	
	21-26	15-30	1.35-1.65	2.00-6.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.24	
	26-31	---	---	---	---	---	---	---	---	
JkF:										
Junaluska	0-11	5-18	1.35-1.60	1.98-5.95	0.12-0.20	0.0-2.9	1.0-5.0	.28	.28	3
	11-21	18-35	1.30-1.65	0.60-2.00	0.12-0.18	0.0-2.9	0.5-1.0	.15	.24	
	21-26	15-30	1.35-1.65	2.00-6.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.24	
	26-31	---	---	---	---	---	---	---	---	
JnC:										
Junaluska	0-11	5-18	1.35-1.60	1.98-5.95	0.12-0.20	0.0-2.9	1.0-5.0	.28	.28	3
	11-21	18-35	1.30-1.65	0.60-2.00	0.12-0.18	0.0-2.9	0.5-1.0	.15	.24	
	21-26	15-30	1.35-1.65	2.00-6.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.24	
	26-31	---	---	---	---	---	---	---	---	
Brasstown	0-6	5-18	1.00-1.40	2.00-6.00	0.12-0.18	0.0-2.9	1.0-5.0	.28	.28	4
	6-29	18-35	1.35-1.60	0.60-2.00	0.12-0.18	0.0-2.9	0.0-0.5	.15	.28	
	29-46	8-20	1.40-1.65	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.28	
	46-60	---	---	---	---	---	---	---	---	
JnD:										
Junaluska	0-11	5-18	1.35-1.60	1.98-5.95	0.12-0.20	0.0-2.9	1.0-5.0	.28	.28	3
	11-21	18-35	1.30-1.65	0.60-2.00	0.12-0.18	0.0-2.9	0.5-1.0	.15	.24	
	21-26	15-30	1.35-1.65	2.00-6.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.24	
	26-31	---	---	---	---	---	---	---	---	
Brasstown	0-6	5-18	1.00-1.40	2.00-6.00	0.12-0.18	0.0-2.9	1.0-5.0	.28	.28	4
	6-29	18-35	1.35-1.60	0.60-2.00	0.12-0.18	0.0-2.9	0.0-0.5	.15	.28	
	29-46	8-20	1.40-1.65	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.28	
	46-60	---	---	---	---	---	---	---	---	

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
								Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
JtF:										
Junaluska	0-11	5-18	1.35-1.60	1.98-5.95	0.12-0.20	0.0-2.9	1.0-5.0	.28	.28	3
	11-21	18-35	1.30-1.65	0.60-2.00	0.12-0.18	0.0-2.9	0.5-1.0	.15	.24	
	21-26	15-30	1.35-1.65	2.00-6.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.24	
	26-31	---	---	---	---	---	---	---	---	
Citico	0-4	15-25	1.30-1.45	0.60-2.00	0.09-0.15	0.0-2.9	---	.24	.32	3
	4-12	18-27	1.30-1.45	0.60-2.00	0.09-0.15	0.0-2.9	---	.24	.32	
	12-45	15-25	1.30-1.45	0.60-2.00	0.08-0.14	0.0-2.9	---	.24	.32	
	45-50	---	---	0.00-0.01	---	---	---	---	---	
JuF:										
Junaluska	0-11	5-18	1.35-1.60	1.98-5.95	0.12-0.20	0.0-2.9	1.0-5.0	.28	.28	3
	11-21	18-35	1.30-1.65	0.60-2.00	0.12-0.18	0.0-2.9	0.5-1.0	.15	.24	
	21-26	15-30	1.35-1.65	2.00-6.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.24	
	26-31	---	---	---	---	---	---	---	---	
Tsali	0-8	5-20	1.35-1.60	2.00-6.00	0.10-0.15	0.0-2.9	1.0-5.0	.15	.28	1
	8-18	18-35	1.30-1.50	0.60-2.00	0.12-0.18	0.0-2.9	0.0-0.5	.15	.28	
	18-60	---	---	---	---	---	---	---	---	
KeC:										
Keener	0-9	5-25	1.35-1.60	2.00-6.00	0.14-0.18	0.0-2.9	1.0-2.0	.24	.24	5
	9-51	10-35	1.30-1.45	0.60-2.00	0.10-0.15	0.0-2.9	0.5-1.0	.20	.24	
	51-65	10-35	1.30-1.45	2.00-6.00	0.08-0.12	0.0-2.9	0.5-1.0	.20	.24	
KeD:										
Keener	0-9	5-25	1.35-1.60	2.00-6.00	0.14-0.18	0.0-2.9	1.0-2.0	.24	.24	5
	9-51	10-35	1.30-1.45	0.60-2.00	0.10-0.15	0.0-2.9	0.5-1.0	.20	.24	
	51-65	10-35	1.30-1.45	2.00-6.00	0.08-0.12	0.0-2.9	0.5-1.0	.20	.24	
LeB:										
Leadvale	0-9	12-22	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	1.0-4.0	.43	.43	4
	9-22	20-32	1.30-1.50	0.60-2.00	0.17-0.20	0.0-2.9	0.0-0.5	.43	.43	
	22-60	20-35	1.55-1.70	0.06-0.60	0.06-0.11	0.0-2.9	0.0-0.5	.43	.43	
LkC:										
Lostcove	0-5	7-20	1.30-1.50	2.00-6.00	0.13-0.19	0.0-2.9	1.0-10	.10	.24	5
	5-76	18-35	1.30-1.65	0.60-2.00	0.04-0.09	0.0-2.9	0.0-1.0	.10	.28	
Keener	0-13	5-25	1.35-1.60	2.00-6.00	0.12-0.17	0.0-2.9	1.0-2.0	.20	.24	5
	13-56	10-35	1.30-1.45	0.60-2.00	0.10-0.15	0.0-2.9	0.5-1.0	.20	.24	
	56-70	10-35	1.30-1.45	2.00-6.00	0.08-0.12	0.0-2.9	0.5-1.0	.20	.24	
LkD:										
Lostcove	0-5	7-20	1.30-1.50	2.00-6.00	0.13-0.19	0.0-2.9	1.0-10	.10	.24	5
	5-76	18-35	1.30-1.65	0.60-2.00	0.04-0.09	0.0-2.9	0.0-1.0	.10	.28	
Keener	0-13	5-25	1.35-1.60	2.00-6.00	0.12-0.17	0.0-2.9	1.0-2.0	.20	.24	5
	13-56	10-35	1.30-1.45	0.60-2.00	0.10-0.15	0.0-2.9	0.5-1.0	.20	.24	
	56-70	10-35	1.30-1.45	2.00-6.00	0.08-0.12	0.0-2.9	0.5-1.0	.20	.24	
LkF:										
Lostcove	0-5	7-20	1.30-1.50	2.00-6.00	0.13-0.19	0.0-2.9	1.0-10	.10	.24	5
	5-76	18-35	1.30-1.65	0.60-2.00	0.04-0.09	0.0-2.9	0.0-1.0	.10	.28	
Keener	0-13	5-25	1.35-1.60	2.00-6.00	0.12-0.17	0.0-2.9	1.0-2.0	.20	.24	5
	13-56	10-35	1.30-1.45	0.60-2.00	0.10-0.15	0.0-2.9	0.5-1.0	.20	.24	
	56-70	10-35	1.30-1.45	2.00-6.00	0.08-0.12	0.0-2.9	0.5-1.0	.20	.24	

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
								Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
McC:										
McCamy	0-7	7-27	1.20-1.40	0.60-6.00	0.13-0.18	0.0-2.9	0.5-4.0	.28	.37	2
	7-26	18-35	1.25-1.35	2.00-6.00	0.12-0.18	0.0-2.9	0.1-0.5	.28	.28	
	26-38	---	---	0.20-0.60	---	---	---	---	---	
	38-42	---	---	0.00-0.20	---	---	---	---	---	
McD:										
McCamy	0-7	7-27	1.20-1.40	0.60-6.00	0.13-0.18	0.0-2.9	0.5-4.0	.28	.37	2
	7-26	18-35	1.25-1.35	2.00-6.00	0.12-0.18	0.0-2.9	0.1-0.5	.28	.28	
	26-38	---	---	0.20-0.60	---	---	---	---	---	
	38-42	---	---	0.00-0.20	---	---	---	---	---	
MnC:										
Minvale	0-13	15-27	1.30-1.45	2.00-6.00	0.14-0.18	0.0-2.9	0.5-2.0	.28	.37	5
	13-28	20-35	1.40-1.55	0.60-2.00	0.12-0.18	0.0-2.9	0.0-0.5	.28	.32	
	28-68	25-45	1.40-1.55	0.60-2.00	0.11-0.17	0.0-2.9	0.0-0.5	.28	.32	
MnD:										
Minvale	0-13	15-27	1.30-1.45	2.00-6.00	0.14-0.18	0.0-2.9	0.5-2.0	.28	.37	5
	13-28	20-35	1.40-1.55	0.60-2.00	0.12-0.18	0.0-2.9	0.0-0.5	.28	.32	
	28-68	25-45	1.40-1.55	0.60-2.00	0.11-0.17	0.0-2.9	0.0-0.5	.28	.32	
NeC:										
Needmore	0-7	18-27	1.30-1.45	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	3
	7-29	40-55	1.45-1.60	0.20-0.60	0.14-0.17	3.0-5.9	0.0-0.5	.24	.24	
	29-34	---	---	0.00-0.20	---	---	0.0-0.5	---	---	
NeD:										
Needmore	0-7	18-27	1.30-1.45	0.60-2.00	0.18-0.22	0.0-2.9	1.0-2.0	.37	.37	3
	7-29	40-55	1.45-1.60	0.20-0.60	0.14-0.17	3.0-5.9	0.0-0.5	.24	.24	
	29-34	---	---	0.00-0.20	---	---	0.0-0.5	---	---	
SeB:										
Sequatchie	0-9	10-25	1.50-1.65	0.60-2.00	0.12-0.18	0.0-2.9	1.0-3.0	.32	.32	5
	9-41	18-30	1.55-1.70	0.60-2.00	0.15-0.20	0.0-2.9	0.0-0.5	.24	.28	
	41-68	12-20	1.55-1.70	0.60-6.00	0.09-0.14	0.0-2.9	0.0-0.5	.24	.24	
Sm:										
Slickens.										
Su:										
Suches	0-10	10-25	1.30-1.50	0.60-2.00	0.11-0.18	0.0-2.9	2.0-4.0	.24	.24	5
	10-41	18-38	1.45-1.65	0.60-2.00	0.12-0.20	0.0-2.9	0.5-2.0	.28	.28	
	41-60	---	---	---	---	---	---	---	---	
TaE:										
Talbott	0-4	15-27	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.5-2.0	.37	.37	2
	4-8	40-60	1.30-1.50	0.20-0.60	0.10-0.14	3.0-5.9	0.0-0.5	.24	.24	
	8-35	40-60	1.30-1.50	0.20-0.60	0.09-0.13	3.0-5.9	0.0-0.5	.24	.24	
	35-40	---	---	0.00-0.06	---	---	---	---	---	
Rock outcrop	0-60	---	---	0.06-6.00	---	---	---	---	---	---
TeB:										
Tate	0-10	5-25	1.35-1.60	2.00-6.00	0.17-0.19	0.0-2.9	1.0-3.0	.24	.24	5
	10-60	18-35	1.30-1.45	0.60-2.00	0.17-0.19	0.0-2.9	0.0-1.0	.28	.28	
To:										
Toccoa	0-10	7-17	1.35-1.45	2.00-6.00	0.09-0.12	0.0-2.9	1.0-2.0	.24	.24	5
	10-60	2-19	1.40-1.50	2.00-6.00	0.09-0.12	0.0-2.9	---	.20	.20	
TuF:										
Tusquitee	0-8	7-20	1.20-1.40	2.00-6.00	0.16-0.24	0.0-2.9	3.0-8.0	.28	.28	5
	8-26	7-25	1.30-1.60	2.00-6.00	0.15-0.21	0.0-2.9	0.5-1.0	.24	.24	
	26-60	5-25	1.30-1.60	2.00-6.00	0.08-0.14	0.0-2.9	0.0-0.5	.17	.24	

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors		
								Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	Pct			
Ud:										
Udifluvents.										
UnD:										
Unicoi	0-3	5-20	1.45-1.55	2.00-6.00	0.08-0.12	0.0-2.9	0.5-2.0	.20	.28	1
	3-17	5-20	1.45-1.60	2.00-6.00	0.04-0.09	0.0-2.9	0.5-2.0	.15	.24	
	17-22	---	---	0.00-0.01	---	---	---	---	---	
Rock outcrop	0-60	---	---	0.06-6.00	---	---	---	---	---	---
UnF:										
Unicoi	0-3	5-20	1.45-1.55	2.00-6.00	0.08-0.12	0.0-2.9	0.5-2.0	.20	.28	1
	3-17	5-20	1.45-1.60	2.00-6.00	0.04-0.09	0.0-2.9	0.5-2.0	.15	.24	
	17-22	---	---	0.00-0.01	---	---	---	---	---	
Rock outcrop	0-60	---	---	0.06-6.00	---	---	---	---	---	---
W:										
Water.										
WaF:										
Wallen	0-4	8-20	1.40-1.55	2.00-6.00	0.07-0.11	0.0-2.9	1.0-2.0	.17	.24	2
	4-30	8-20	1.40-1.55	2.00-6.00	0.05-0.09	0.0-2.9	0.0-0.5	.17	.28	
	30-34	---	---	0.00-0.20	---	---	---	---	---	
WbB2:										
Waynesboro	0-7	10-27	1.40-1.55	0.60-2.00	0.15-0.21	0.0-2.9	0.5-2.0	.28	.28	5
	7-11	23-35	1.40-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.5-2.0	.28	.28	
	11-72	35-50	1.40-1.55	0.60-2.00	0.13-0.18	0.0-2.9	0.5-2.0	.28	.28	
WbC2:										
Waynesboro	0-7	10-27	1.40-1.55	0.60-2.00	0.15-0.21	0.0-2.9	0.5-2.0	.28	.28	5
	7-11	23-35	1.40-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.5-2.0	.28	.28	
	11-72	35-50	1.40-1.55	0.60-2.00	0.13-0.18	0.0-2.9	0.5-2.0	.28	.28	
WbD2:										
Waynesboro	0-7	10-27	1.40-1.55	0.60-2.00	0.15-0.21	0.0-2.9	0.5-2.0	.28	.28	5
	7-11	23-35	1.40-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.5-2.0	.28	.28	
	11-72	35-50	1.40-1.55	0.60-2.00	0.13-0.18	0.0-2.9	0.5-2.0	.28	.28	
WbD3:										
Waynesboro	0-3	10-27	1.40-1.55	0.60-2.00	0.15-0.21	0.0-2.9	0.5-2.0	.28	.28	5
	3-11	23-35	1.40-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.5-2.0	.28	.28	
	11-72	35-50	1.40-1.55	0.60-2.00	0.13-0.18	0.0-2.9	0.5-2.0	.28	.28	
Wt:										
Whitwell	0-8	10-25	1.35-1.55	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.32	.24	5
	8-60	18-32	1.40-1.70	0.60-2.00	0.14-0.20	0.0-2.9	---	.32	.32	

Table 16.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
AnC2:				
Apison	0-6	---	---	4.5-5.5
	6-30	---	---	4.5-5.5
	30-61	---	---	---
ApC2:				
Apison	0-6	---	---	4.5-5.5
	6-30	---	---	4.5-5.5
	30-61	---	---	---
Armuchee	0-4	---	---	4.5-5.5
	4-13	---	---	4.5-5.5
	13-21	---	---	4.5-5.5
	21-25	---	---	---
ApD2:				
Apison	0-6	---	---	4.5-5.5
	6-30	---	---	4.5-5.5
	30-61	---	---	---
Armuchee	0-4	---	---	4.5-5.5
	4-13	---	---	4.5-5.5
	13-21	---	---	4.5-5.5
	21-25	---	---	---
Ar:				
Arkaqua	0-6	---	---	4.5-6.5
	6-37	10-15	---	4.5-6.5
	37-50	---	5.0-10	4.5-6.0
	50-61	---	2.0-10	---
Suches	0-10	5.0-10	---	5.1-6.0
	10-41	6.0-12	---	5.1-6.0
	41-60	---	---	---
AuC2:				
Armuchee	0-4	---	---	4.5-5.5
	4-13	---	---	4.5-5.5
	13-21	---	---	4.5-5.5
	21-25	---	---	---
AuD2:				
Armuchee	0-4	---	---	4.5-5.5
	4-13	---	---	4.5-5.5
	13-21	---	---	4.5-5.5
	21-25	---	---	---
AuE:				
Armuchee	0-8	---	---	4.5-5.5
	8-17	---	---	4.5-5.5
	17-24	---	---	4.5-5.5
	24-60	---	---	---
BrC:				
Brevard	0-7	---	2.0-8.0	4.5-6.0
	7-70	---	2.0-5.0	4.5-6.0
BrD:				
Brevard	0-7	---	2.0-8.0	4.5-6.0
	7-70	---	2.0-5.0	4.5-6.0
BrE:				
Brevard	0-7	---	2.0-8.0	4.5-6.0
	7-70	---	2.0-5.0	4.5-6.0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
CaF:				
Cataska	0-5	---	---	3.6-5.5
	5-15	---	---	3.6-5.5
	15-24	---	---	---
	24-28	---	---	---
Rock outcrop.				
CaG:				
Cataska	0-5	---	---	3.6-5.5
	5-15	---	---	3.6-5.5
	15-24	---	---	---
	24-28	---	---	---
Rock outcrop.				
CcD:				
Citico	0-4	---	---	5.1-5.5
	4-12	---	---	5.1-5.5
	12-45	---	---	5.1-5.5
	45-50	---	---	---
CcF:				
Citico	0-4	---	---	5.1-5.5
	4-12	---	---	5.1-5.5
	12-45	---	---	5.1-5.5
	45-50	---	---	---
CoC2:				
Collegedale	0-6	---	---	4.5-5.5
	6-65	---	---	4.5-5.5
CoD2:				
Collegedale	0-6	---	---	4.5-5.5
	6-65	---	---	4.5-5.5
DeB2:				
Decatur	0-6	---	---	4.5-6.0
	6-67	---	---	4.5-6.0
DeC2:				
Decatur	0-6	---	---	4.5-6.0
	6-67	---	---	4.5-6.0
DeD2:				
Decatur	0-6	---	---	4.5-6.0
	6-67	---	---	4.5-6.0
DtD:				
Ditney	0-7	---	---	3.6-5.5
	7-15	---	---	3.6-5.5
	15-35	---	---	3.6-5.5
	35-40	---	---	---
DtF:				
Ditney	0-7	---	---	3.6-5.5
	7-15	---	---	3.6-5.5
	15-35	---	---	3.6-5.5
	35-40	---	---	---
Ea:				
Emory	0-8	---	---	5.1-6.0
	8-32	---	---	5.1-6.0
	32-60	---	---	5.1-6.0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
EdC:				
Evard	0-5	---	6.0-12	4.5-6.0
	5-22	---	5.0-7.0	4.5-6.0
	22-32	---	3.0-5.0	4.5-6.0
	32-60	---	2.0-4.0	4.5-6.0
EdD:				
Evard	0-5	---	6.0-12	4.5-6.0
	5-22	---	5.0-7.0	4.5-6.0
	22-32	---	3.0-5.0	4.5-6.0
	32-60	---	2.0-4.0	4.5-6.0
ErC:				
Evard	0-5	---	6.0-12	4.5-6.0
	5-22	---	5.0-7.0	4.5-6.0
	22-32	---	3.0-5.0	4.5-6.0
	32-60	---	2.0-4.0	4.5-6.0
Hayesville	0-5	---	2.0-6.0	3.5-6.5
	5-36	---	3.0-8.0	3.5-6.0
	36-60	---	1.0-5.0	3.5-6.0
ErD:				
Evard	0-5	---	6.0-12	4.5-6.0
	5-22	---	5.0-7.0	4.5-6.0
	22-32	---	3.0-5.0	4.5-6.0
	32-60	---	2.0-4.0	4.5-6.0
Hayesville	0-5	---	2.0-6.0	3.5-6.5
	5-36	---	3.0-8.0	3.5-6.0
	36-60	---	1.0-5.0	3.5-6.0
EvC:				
Evard	0-5	---	6.0-12	4.5-6.0
	5-22	---	5.0-7.0	4.5-6.0
	22-32	---	3.0-5.0	4.5-6.0
	32-60	---	2.0-4.0	4.5-6.0
Hayesville	0-5	---	2.0-6.0	3.5-6.5
	5-36	---	3.0-8.0	3.5-6.0
	36-60	---	1.0-5.0	3.5-6.0
EvD:				
Evard	0-5	---	6.0-12	4.5-6.0
	5-22	---	5.0-7.0	4.5-6.0
	22-32	---	3.0-5.0	4.5-6.0
	32-60	---	2.0-4.0	4.5-6.0
Hayesville	0-5	---	2.0-6.0	3.5-6.5
	5-36	---	3.0-8.0	3.5-6.0
	36-60	---	1.0-5.0	3.5-6.0
GeC:				
Gullied land.				
Evard	0-5	---	6.0-12	4.5-6.0
	5-22	---	5.0-7.0	4.5-6.0
	22-32	---	3.0-5.0	4.5-6.0
	32-60	---	2.0-4.0	4.5-6.0
GeD:				
Gullied land.				

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
GeD:				
Evard	0-5	---	6.0-12	4.5-6.0
	5-22	---	5.0-7.0	4.5-6.0
	22-32	---	3.0-5.0	4.5-6.0
	32-60	---	2.0-4.0	4.5-6.0
GuE:				
Gullied land.				
Ha:				
Hamblen	0-9	---	---	5.1-7.3
	9-46	---	---	5.1-7.3
	46-60	---	---	5.1-7.3
JeD:				
Jeffrey	0-11	---	---	4.5-5.5
	11-28	---	---	4.5-5.5
	28-32	---	---	---
JeF:				
Jeffrey	0-11	---	---	4.5-5.5
	11-28	---	---	4.5-5.5
	28-32	---	---	---
JkD:				
Junaluska	0-11	---	2.0-9.0	3.5-6.0
	11-21	---	4.0-8.0	3.5-6.0
	21-26	---	3.0-5.0	3.5-6.0
	26-31	---	---	---
JkF:				
Junaluska	0-11	---	2.0-9.0	3.5-6.0
	11-21	---	4.0-8.0	3.5-6.0
	21-26	---	3.0-5.0	3.5-6.0
	26-31	---	---	---
JnC:				
Junaluska	0-11	---	2.0-9.0	3.5-6.0
	11-21	---	4.0-8.0	3.5-6.0
	21-26	---	3.0-5.0	3.5-6.0
	26-31	---	---	---
Brasstown	0-6	---	2.0-9.0	3.5-6.0
	6-29	---	3.0-8.0	3.5-6.0
	29-46	---	2.0-5.0	3.5-6.0
	46-60	---	---	---
JnD:				
Junaluska	0-11	---	2.0-9.0	3.5-6.0
	11-21	---	4.0-8.0	3.5-6.0
	21-26	---	3.0-5.0	3.5-6.0
	26-31	---	---	---
Brasstown	0-6	---	2.0-9.0	3.5-6.0
	6-29	---	3.0-8.0	3.5-6.0
	29-46	---	2.0-5.0	3.5-6.0
	46-60	---	---	---
JtF:				
Junaluska	0-11	---	2.0-9.0	3.5-6.0
	11-21	---	4.0-8.0	3.5-6.0
	21-26	---	3.0-5.0	3.5-6.0
	26-31	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
JtF:				
Citico	0-4	---	---	5.1-5.5
	4-12	---	---	5.1-5.5
	12-45	---	---	5.1-5.5
	45-50	---	---	---
JuF:				
Junaluska	0-11	---	2.0-9.0	3.5-6.0
	11-21	---	4.0-8.0	3.5-6.0
	21-26	---	3.0-5.0	3.5-6.0
	26-31	---	---	---
Tsali	0-8	---	2.0-9.0	3.5-6.0
	8-18	---	3.0-7.0	3.5-6.0
	18-60	---	---	---
KeC:				
Keener	0-9	---	---	3.6-6.0
	9-51	---	---	3.6-6.0
	51-65	---	---	3.6-6.0
KeD:				
Keener	0-9	---	---	3.6-6.0
	9-51	---	---	3.6-6.0
	51-65	---	---	3.6-6.0
LeB:				
Leadvale	0-9	---	---	4.5-5.5
	9-22	---	---	4.5-5.5
	22-60	---	---	4.5-5.5
LkC:				
Lostcove	0-5	---	2.0-10	3.5-6.0
	5-76	---	3.0-8.0	3.5-6.0
Keener	0-13	---	---	3.6-6.0
	13-56	---	---	3.6-6.0
	56-70	---	---	3.6-6.0
LkD:				
Lostcove	0-5	---	2.0-10	3.5-6.0
	5-76	---	3.0-8.0	3.5-6.0
Keener	0-13	---	---	3.6-6.0
	13-56	---	---	3.6-6.0
	56-70	---	---	3.6-6.0
LkF:				
Lostcove	0-5	---	2.0-10	3.5-6.0
	5-76	---	3.0-8.0	3.5-6.0
Keener	0-13	---	---	3.6-6.0
	13-56	---	---	3.6-6.0
	56-70	---	---	3.6-6.0
McC:				
McCamy	0-7	---	10-45	3.6-5.5
	7-26	---	5.0-50	3.6-5.5
	26-38	---	---	---
	38-42	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
McD:				
McCamy	0-7	---	10-45	3.6-5.5
	7-26	---	5.0-50	3.6-5.5
	26-38	---	---	---
	38-42	---	---	---
MnC:				
Minvale	0-13	---	---	4.5-5.5
	13-28	---	---	4.5-5.5
	28-68	---	---	4.5-5.5
MnD:				
Minvale	0-13	---	---	4.5-5.5
	13-28	---	---	4.5-5.5
	28-68	---	---	4.5-5.5
NeC:				
Needmore	0-7	---	---	4.5-6.5
	7-29	---	---	4.5-6.0
	29-34	---	---	---
NeD:				
Needmore	0-7	---	---	4.5-6.5
	7-29	---	---	4.5-6.0
	29-34	---	---	---
SeB:				
Sequatchie	0-9	---	---	4.5-5.5
	9-41	---	---	4.5-5.5
	41-68	---	---	4.5-5.5
Sm:				
Slickens.				
Su:				
Suches	0-10	5.0-10	---	5.1-6.0
	10-41	6.0-12	---	5.1-6.0
	41-60	---	---	---
TaE:				
Talbott	0-4	---	---	5.1-6.5
	4-8	---	---	5.1-6.5
	8-35	---	---	6.1-7.8
	35-40	---	---	---
Rock outcrop.				
TeB:				
Tate	0-10	2.0-6.0	---	4.5-6.5
	10-60	3.0-7.0	---	4.5-6.5
To:				
Toccoa	0-10	3.0-6.0	---	5.1-6.5
	10-60	1.0-4.0	---	5.1-6.5
TuF:				
Tusquitee	0-8	4.0-12	---	4.5-6.5
	8-26	---	2.0-5.0	4.5-6.0
	26-60	---	1.0-5.0	4.5-6.0
Ud:				
Udifluvents.				

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
UnD:				
Unicoi	0-3	---	---	3.6-5.5
	3-17	---	---	3.6-5.5
	17-22	---	---	---
Rock outcrop.				
UnF:				
Unicoi	0-3	---	---	3.6-5.5
	3-17	---	---	3.6-5.5
	17-22	---	---	---
Rock outcrop.				
W:				
Water.				
WaF:				
Wallen	0-4	---	---	3.5-6.0
	4-30	---	---	3.5-6.0
	30-34	---	---	---
WbB2:				
Waynesboro	0-7	---	5.0-12	4.5-5.5
	7-11	---	5.0-10	4.5-5.5
	11-72	---	8.0-15	4.5-5.5
WbC2:				
Waynesboro	0-7	---	5.0-12	4.5-5.5
	7-11	---	5.0-10	4.5-5.5
	11-72	---	8.0-15	4.5-5.5
WbD2:				
Waynesboro	0-7	---	5.0-12	4.5-5.5
	7-11	---	5.0-10	4.5-5.5
	11-72	---	8.0-15	4.5-5.5
WbD3:				
Waynesboro	0-3	---	5.0-12	4.5-5.5
	3-11	---	5.0-10	4.5-5.5
	11-72	---	8.0-15	4.5-5.5
Wt:				
Whitwell	0-8	---	---	4.5-6.0
	8-60	---	---	4.5-5.5

Table 17.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of flooding apply to the whole year rather than to individual months. Absence of an indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydrologic group	Month	Water table		Flooding	
			Upper limit	Lower limit	Duration	Frequency
			Ft	Ft		
AnC2:						
Apison	B	Jan-Dec	---	---	---	None
ApC2:						
Apison	B	Jan-Dec	---	---	---	None
Armuchee	C	Jan-Dec	---	---	---	None
ApD2:						
Apison	B	Jan-Dec	---	---	---	None
Armuchee	C	Jan-Dec	---	---	---	None
Ar:						
Arkaqua	C	January	1.5-2.0	>6.0	Very brief	Occasional
		February	1.5-2.0	>6.0	Very brief	Occasional
		March	1.5-2.0	>6.0	Very brief	Occasional
		April	1.5-2.0	>6.0	---	None
		May	1.5-2.0	>6.0	---	None
		December	1.5-2.0	>6.0	Very brief	Occasional
Suches	B	January	2.5-4.0	>6.0	Brief	Occasional
		February	2.5-4.0	>6.0	Brief	Occasional
		March	2.5-4.0	>6.0	Brief	Occasional
		April	2.5-4.0	>6.0	---	None
		May	2.5-4.0	>6.0	---	None
		December	2.5-4.0	>6.0	Brief	Occasional
AuC2:						
Armuchee	C	Jan-Dec	---	---	---	None
AuD2:						
Armuchee	C	Jan-Dec	---	---	---	None
AuE:						
Armuchee	C	Jan-Dec	---	---	---	None
BrC:						
Brevard	B	Jan-Dec	---	---	---	None
BrD:						
Brevard	B	Jan-Dec	---	---	---	None
BrE:						
Brevard	B	Jan-Dec	---	---	---	None
CaF:						
Cataska	D	Jan-Dec	---	---	---	None
Rock outcrop	D	Jan-Dec	---	---	---	None
CaG:						
Cataska	D	Jan-Dec	---	---	---	None
Rock outcrop	D	Jan-Dec	---	---	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Flooding	
			Upper limit	Lower limit	Duration	Frequency
			Ft	Ft		
CcD:						
Citico	B	Jan-Dec	---	---	---	None
CcF:						
Citico	B	Jan-Dec	---	---	---	None
CoC2:						
Collegedale	C	Jan-Dec	---	---	---	None
CoD2:						
Collegedale	C	Jan-Dec	---	---	---	None
DeB2:						
Decatur	B	Jan-Dec	---	---	---	None
DeC2:						
Decatur	B	Jan-Dec	---	---	---	None
DeD2:						
Decatur	B	Jan-Dec	---	---	---	None
DtD:						
Ditney	C	Jan-Dec	---	---	---	None
DtF:						
Ditney	C	Jan-Dec	---	---	---	None
Ea:						
Emory	B	January	5.0-6.0	>6.0	Very brief	Occasional
		February	5.0-6.0	>6.0	Very brief	Occasional
		March	5.0-6.0	>6.0	Very brief	Occasional
		December	5.0-6.0	>6.0	Very brief	Occasional
EdC:						
Evard	B	Jan-Dec	---	---	---	None
EdD:						
Evard	B	Jan-Dec	---	---	---	None
ErC:						
Evard	B	Jan-Dec	---	---	---	None
Hayesville	B	Jan-Dec	---	---	---	None
ErD:						
Evard	B	Jan-Dec	---	---	---	None
Hayesville	B	Jan-Dec	---	---	---	None
EvC:						
Evard	B	Jan-Dec	---	---	---	None
Hayesville	B	Jan-Dec	---	---	---	None
EvD:						
Evard	B	Jan-Dec	---	---	---	None
Hayesville	B	Jan-Dec	---	---	---	None
GeC:						
Gullied land.						

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Flooding	
			Upper limit	Lower limit	Duration	Frequency
			Ft	Ft		
GeC:						
Evard	B	Jan-Dec	---	---	---	None
GeD:						
Gullied land.						
Evard	B	Jan-Dec	---	---	---	None
GuE:						
Gullied land.						
Ha:						
Hamblen	C	January	2.0-3.0	>6.0	Very brief	Occasional
		February	2.0-3.0	>6.0	Very brief	Occasional
		March	2.0-3.0	>6.0	Very brief	Occasional
		December	2.0-3.0	>6.0	Very brief	Occasional
JeD:						
Jeffrey	B	Jan-Dec	---	---	---	None
JeF:						
Jeffrey	B	Jan-Dec	---	---	---	None
JkD:						
Junaluska	B	Jan-Dec	---	---	---	None
JkF:						
Junaluska	B	Jan-Dec	---	---	---	None
JnC:						
Junaluska	B	Jan-Dec	---	---	---	None
Brasstown	B	Jan-Dec	---	---	---	None
JnD:						
Junaluska	B	Jan-Dec	---	---	---	None
Brasstown	B	Jan-Dec	---	---	---	None
JtF:						
Junaluska	B	Jan-Dec	---	---	---	None
Citico	B	Jan-Dec	---	---	---	None
JuF:						
Junaluska	B	Jan-Dec	---	---	---	None
Tsali	C	Jan-Dec	---	---	---	None
KeC:						
Keener	B	Jan-Dec	---	---	---	None
KeD:						
Keener	B	Jan-Dec	---	---	---	None
LeB:						
Leadvale	C	January	1.6-2.0	---	Very brief	Rare
		February	1.6-2.0	---	Very brief	Rare
		March	1.6-2.0	---	Very brief	Rare
		April	1.6-2.0	---	---	None
		December	---	---	Very brief	Rare

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Flooding	
			Upper limit	Lower limit	Duration	Frequency
			Ft	Ft		
LkC:						
Lostcove	B	January	5.0-6.0	>6.0	---	None
		February	5.0-6.0	>6.0	---	None
		March	5.0-6.0	>6.0	---	None
		April	5.0-6.0	>6.0	---	None
		October	5.0-6.0	>6.0	---	None
		November	5.0-6.0	>6.0	---	None
		December	5.0-6.0	>6.0	---	None
Keener	B	Jan-Dec	---	---	---	None
LkD:						
Lostcove	B	January	5.0-6.0	>6.0	---	None
		February	5.0-6.0	>6.0	---	None
		March	5.0-6.0	>6.0	---	None
		April	5.0-6.0	>6.0	---	None
		October	5.0-6.0	>6.0	---	None
		November	5.0-6.0	>6.0	---	None
		December	5.0-6.0	>6.0	---	None
Keener	B	Jan-Dec	---	---	---	None
LkF:						
Lostcove	B	January	5.0-6.0	>6.0	---	None
		February	5.0-6.0	>6.0	---	None
		March	5.0-6.0	>6.0	---	None
		April	5.0-6.0	>6.0	---	None
		October	5.0-6.0	>6.0	---	None
		November	5.0-6.0	>6.0	---	None
		December	5.0-6.0	>6.0	---	None
Keener	B	Jan-Dec	---	---	---	None
McC:						
McCamy	B	Jan-Dec	---	---	---	None
McD:						
McCamy	B	Jan-Dec	---	---	---	None
MnC:						
Minvale	B	Jan-Dec	---	---	---	None
MnD:						
Minvale	B	Jan-Dec	---	---	---	None
NeC:						
Needmore	C	Jan-Dec	---	---	---	None
NeD:						
Needmore	C	Jan-Dec	---	---	---	None
SeB:						
Sequatchie	B	January	---	---	Brief	Rare
		February	---	---	Brief	Rare
		March	---	---	Brief	Rare
		December	---	---	Brief	Rare
Sm:						
Slickens.						

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Flooding	
			Upper limit	Lower limit	Duration	Frequency
			Ft	Ft		
Su:						
Suches	B	January	2.5-4.0	>6.0	Brief	Occasional
		February	2.5-4.0	>6.0	Brief	Occasional
		March	2.5-4.0	>6.0	Brief	Occasional
		April	2.5-4.0	>6.0	---	None
		May	2.5-4.0	>6.0	---	None
		December	2.5-4.0	>6.0	Brief	Occasional
TaE:						
Talbott	C	Jan-Dec	---	---	---	None
Rock outcrop	D	Jan-Dec	---	---	---	None
TeB:						
Tate	B	Jan-Dec	---	---	---	None
To:						
Toccoa	B	January	2.5-5.0	>6.0	Brief	Rare
		February	2.5-5.0	>6.0	Brief	Rare
		March	2.5-5.0	>6.0	Brief	Rare
		April	2.5-5.0	>6.0	---	None
		December	2.5-5.0	>6.0	Brief	Rare
TuF:						
Tusquitee	B	Jan-Dec	---	---	---	None
Ud:						
Udifluvents.						
UnD:						
Unicoi	C	Jan-Dec	---	---	---	None
Rock outcrop	D	Jan-Dec	---	---	---	None
UnF:						
Unicoi	C	Jan-Dec	---	---	---	None
Rock outcrop	D	Jan-Dec	---	---	---	None
WaF:						
Wallen	B	Jan-Dec	---	---	---	None
WbB2:						
Waynesboro	B	Jan-Dec	---	---	---	None
WbC2:						
Waynesboro	B	Jan-Dec	---	---	---	None
WbD2:						
Waynesboro	B	Jan-Dec	---	---	---	None
WbD3:						
Waynesboro	B	Jan-Dec	---	---	---	None
Wt:						
Whitwell	C	January	2.0-3.0	>6.0	Very brief	Occasional
		February	2.0-3.0	>6.0	Very brief	Occasional
		March	2.0-3.0	>6.0	Very brief	Occasional
		December	2.0-3.0	>6.0	Very brief	Occasional

Table 18.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer		Risk of corrosion	
	Kind	Depth to top	Uncoated steel	Concrete
		In		
AnC2:				
Apison	Bedrock (paralithic)	20-40	Moderate	Moderate
ApC2:				
Apison	Bedrock (paralithic)	20-40	Moderate	Moderate
Armuchee	Bedrock (paralithic)	20-40	Moderate	Moderate
ApD2:				
Apison	Bedrock (paralithic)	20-40	Moderate	Moderate
Armuchee	Bedrock (paralithic)	20-40	Moderate	Moderate
Ar:				
Arkaqua	---	---	High	Moderate
Suches	---	---	High	Moderate
AuC2:				
Armuchee	Bedrock (paralithic)	20-40	Moderate	Moderate
AuD2:				
Armuchee	Bedrock (paralithic)	20-40	Moderate	Moderate
AuE:				
Armuchee	Bedrock (paralithic)	20-40	Moderate	Moderate
BrC:				
Brevard	---	---	Moderate	Moderate
BrD:				
Brevard	---	---	Moderate	Moderate
BrE:				
Brevard	---	---	Moderate	Moderate
CaF:				
Cataska	Bedrock (paralithic)	10-20	Low	Moderate
Rock outcrop	Bedrock (paralithic)	0-0	---	---
CaG:				
Cataska	Bedrock (paralithic)	10-20	Low	Moderate
Rock outcrop	Bedrock (paralithic)	0-0	---	---

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Risk of corrosion	
	Kind	Depth to top	Uncoated steel	Concrete
		In		
CcD:				
Citico	Bedrock (lithic)	40-60	Low	Moderate
CcF:				
Citico	Bedrock (lithic)	40-60	Low	Moderate
CoC2:				
Collegedale	---	---	High	Moderate
CoD2:				
Collegedale	---	---	High	Moderate
DeB2:				
Decatur	---	---	High	Moderate
DeC2:				
Decatur	---	---	High	Moderate
DeD2:				
Decatur	---	---	High	Moderate
DtD:				
Ditney	Bedrock (lithic)	20-40	Low	Moderate
DtF:				
Ditney	Bedrock (lithic)	20-40	Low	Moderate
Ea:				
Emory	---	---	Moderate	Moderate
EdC:				
Evard	---	---	Moderate	High
EdD:				
Evard	---	---	Moderate	High
ErC:				
Evard	---	---	Moderate	High
Hayesville	---	---	Moderate	Moderate
ErD:				
Evard	---	---	Moderate	High
Hayesville	---	---	Moderate	Moderate
EvC:				
Evard	---	---	Moderate	High
Hayesville	---	---	Moderate	Moderate
EvD:				
Evard	---	---	Moderate	High
Hayesville	---	---	Moderate	Moderate
GeC:				
Gullied land.				
Evard	---	---	Moderate	High
GeD:				
Gullied land.				

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Risk of corrosion	
	Kind	Depth to top	Uncoated steel	Concrete
		In		
GeD:				
Evard	---	---	Moderate	High
GuE:				
Gullied land.				
Ha:				
Hamblen	---	---	Moderate	Moderate
JeD:				
Jeffrey	Bedrock (lithic)	20-40	Low	Moderate
JeF:				
Jeffrey	Bedrock (lithic)	20-40	Low	Moderate
JkD:				
Junaluska	Bedrock (paralithic)	20-40	Moderate	High
JkF:				
Junaluska	Bedrock (paralithic)	20-40	Moderate	High
JnC:				
Junaluska	Bedrock (paralithic)	20-40	Moderate	High
Brasstown	Bedrock (paralithic)	40-60	Moderate	High
JnD:				
Junaluska	Bedrock (paralithic)	20-40	Moderate	High
Brasstown	Bedrock (paralithic)	40-60	Moderate	High
JtF:				
Junaluska	Bedrock (paralithic)	20-40	Moderate	High
Citico	Bedrock (lithic)	40-60	Low	Moderate
JuF:				
Junaluska	Bedrock (paralithic)	20-40	Moderate	High
Tsali	Bedrock (paralithic)	10-20	Moderate	High
KeC:				
Keener	---	---	Moderate	Moderate
KeD:				
Keener	---	---	Moderate	Moderate
LeB:				
Leadvale	Fragipan	16-38	Moderate	Moderate
LkC:				
Lostcove	---	---	Low	High
Keener	---	---	Moderate	Moderate

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Risk of corrosion	
	Kind	Depth to top	Uncoated steel	Concrete
		In		
LkD:				
Lostcove	---	---	Low	High
Keener	---	---	Moderate	Moderate
LkF:				
Lostcove	---	---	Low	High
Keener	---	---	Moderate	Moderate
McC:				
McCamy	Bedrock (lithic)	20-40	Moderate	High
McD:				
McCamy	Bedrock (lithic)	20-40	Moderate	High
MnC:				
Minvale	---	---	Moderate	Low
MnD:				
Minvale	---	---	Moderate	Low
NeC:				
Needmore	Bedrock (paralithic)	20-40	High	Moderate
NeD:				
Needmore	Bedrock (paralithic)	20-40	High	Moderate
SeB:				
Sequatchie	---	---	Low	Moderate
Sm:				
Slickens.				
Su:				
Suches	---	---	High	Moderate
TaE:				
Talbott	Bedrock (lithic)	20-40	High	Moderate
Rock outcrop	Bedrock (lithic)	0-0	---	---
TeB:				
Tate	---	---	Moderate	Moderate
To:				
Toccoa	---	---	Low	Moderate
TuF:				
Tusquitee	---	---	Moderate	Moderate
Ud:				
Udifluvents.				
UnD:				
Unicoi	Bedrock (lithic)	7-20	Low	Moderate
Rock outcrop	Bedrock (lithic)	0-0	---	---
UnF:				
Unicoi	Bedrock (lithic)	7-20	Low	Moderate

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Risk of corrosion	
	Kind	Depth to top	Uncoated steel	Concrete
		In		
UnF:				
Rock outcrop	Bedrock (lithic)	0-0	---	---
W:				
Water.				
WaF:				
Wallen	Bedrock (lithic)	20-40	Low	High
WbB2:				
Waynesboro	---	---	High	High
WbC2:				
Waynesboro	---	---	High	High
WbD2:				
Waynesboro	---	---	High	High
WbD3:				
Waynesboro	---	---	High	High
Wt:				
Whitwell	---	---	Moderate	Moderate

Table 19.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Apison	Fine-loamy, siliceous, thermic Typic Hapludults
Arkaqua	Fine-loamy, mixed, mesic Fluvaquentic Dystrochrepts
Armuchee	Clayey, mixed, thermic Ochreptic Hapludults
Brasstown	Fine-loamy, mixed, mesic Typic Hapludults
Brevard	Fine-loamy, oxidic, mesic Typic Hapludults
Cataska	Loamy-skeletal, mixed, mesic, shallow Typic Dystrochrepts
Citico	Fine-loamy, mixed, mesic Typic Dystrochrepts
Collegedale	Clayey, mixed, thermic Typic Paleudults
Decatur	Clayey, kaolinitic, thermic Rhodic Paleudults
Ditney	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Emory	Fine-silty, siliceous, thermic Fluventic Umbric Dystrochrepts
Evard	Fine-loamy, oxidic, mesic Typic Hapludults
Hamblen	Fine-loamy, siliceous, thermic Fluvaquentic Eutrochrepts
Hayesville	Clayey, kaolinitic, mesic Typic Kanhapludults
Jeffrey	Fine-loamy, mixed, mesic Umbric Dystrochrepts
Junaluska	Fine-loamy, mixed, mesic Typic Hapludults
Keener	Fine-loamy, siliceous, mesic Typic Hapludults
Leadvale	Fine-silty, siliceous, thermic Typic Fragiudults
*Lostcove	Loamy-skeletal, siliceous, mesic Typic Hapludults
McCamy	Fine-loamy, siliceous, mesic Typic Hapludults
Minvale	Fine-loamy, siliceous, thermic Typic Paleudults
Needmore	Fine, mixed, mesic Ultic Hapludalfs
*Sequatchie	Fine-loamy, siliceous, thermic Humic Hapludults
Suches	Fine-loamy, mixed, mesic Fluventic Dystrochrepts
Talbott	Fine, mixed, thermic Typic Hapludalfs
Tate	Fine-loamy, mixed, mesic Typic Hapludults
Toccoa	Coarse-loamy, mixed, nonacid, thermic Typic Udifluvents
Tsali	Loamy, mixed, mesic, shallow Typic Hapludults
Tusquitee	Fine-loamy, mixed, mesic Umbric Dystrochrepts
Udifluvents	Udifluvents
Unicoi	Loamy-skeletal, mixed, mesic Lithic Dystrochrepts
Wallen	Loamy-skeletal, siliceous, mesic Typic Dystrochrepts
Waynesboro	Clayey, kaolinitic, thermic Typic Paleudults
*Whitwell	Fine-loamy, siliceous, thermic Aquic Hapludults